

# GEOLOGICAL SURVEY OF CANADA

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ACTING DIRECTOR.

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## SECTION OF MINES

### ANNUAL REPORT

FOR

1904



OTTAWA

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## GEOLOGICAL SURVEY OF CANADA.

## MINES SECTION.

## Mineral Production of Canada, Calendar Years 1895 to 1904.

PRODUCTS.			1895.		1896.		1897.		1898.		1899.		1900.		1901.		1902.		1903.		1904.		PRODUCTS.		
			Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.			
METALLIC.				\$		\$		\$		\$		\$		\$		\$		\$		\$		\$	METALLIC.		
Antimony ore.	Tons.							1,344	20,000														Antimony ore.		
Copper (c).	Lbs.	7,771,639	836,228	9,393,012	1,021,960	13,300,802	1,501,660	17,747,136	2,134,980	15,078,475	2,655,319	18,937,138	3,065,922	37,827,019	6,096,581	38,804,259	4,511,383	42,684,454	5,649,487	41,383,722	5,306,635	Copper (c).			
Gold (d).	Oz.	100,806	2,083,674	133,274	2,754,774	291,582	6,027,016	666,445	13,775,420	1,028,620	21,261,584	1,350,176	27,908,153	1,167,320	24,128,503	1,032,253	21,336,667	911,639	18,843,590	796,445	16,462,517	Gold (d).			
Iron (n).	Tons.																						Iron (n).		
Lead (e).	Lbs.	102,797	238,070	91,906	191,557	50,705	130,290	58,343	152,788	74,617	240,542	(o) 50,657	126,642	(o) 157,033	392,582	(o) 278,339	695,847	(o) 153,513	384,927	(o) 87,000	174,000	Lead (e).			
Mercury.	Lbs.	16,461,794	531,716	24,199,977	721,159	39,018,219	1,396,853	31,915,319	1,206,399	21,862,436	977,250	63,169,821	2,760,521	51,900,958	2,249,387	22,956,381	934,095	18,139,283	768,562	37,531,244	1,617,221	Mercury.			
Nickel (f).	Lbs.	5,431	2,343	4,437	1,940	688	324															Nickel (f).			
Platinum.	Oz.	3,888,525	1,360,984	3,397,113	1,188,990	3,997,647	1,399,176	5,517,690	1,820,838	5,744,000	2,067,840	7,080,227	3,327,707	9,189,047	4,594,523	10,693,410	5,025,903	12,005,510	5,002,204	10,547,883	4,219,153	Platinum.			
Radium.	Oz.		3,800		750		1,600	100	1,500	55	825				457	2,385	46,502	1,710	33,345	571	10,872	Radium.			
Silver.	Lbs.																						Silver.		
Zinc.	Lbs.	1,578,275	1,030,299	3,205,343	2,149,503	5,558,446	3,323,395	4,452,333	2,593,929	3,411,644	2,032,658	4,468,225	2,740,362	5,539,192	3,265,354	4,291,317	2,238,351	3,198,581	1,709,642	3,577,026	2,047,095	Zinc.			
Total value, Metallic.				6,087,114		8,030,633		13,780,314		21,741,865		29,282,823		40,521,807		41,939,500		35,924,651		33,210,147		30,924,897	Total value, Metallic.		
NON-METALLIC.				(a)		(a)		(a)		(a)		(a)		(a)		(a)		(a)		(a)		(a)	NON-METALLIC.		
Actinolite.	Tons.					* 205									521	3,126	550	4,400	550	3,108			Actinolite.		
Arsenic (white).	"								57	4,872	303	22,725	694	41,676	800	48,000	257	15,420		72	903	Arsenic.			
Asbestos.	"	8,756	368,175	12,250	429,856	30,442	445,368	23,785	491,197	25,536	485,849	29,141	748,431	40,217	1,259,759	40,416	1,148,319	41,677	929,757	35,611	1,213,502	Asbestos.			
Chromite.	"	3,177	41,300	2,342	27,004	2,637	32,474	2,021	24,252	2,010	21,842	2,335	27,000	1,274	16,744	900	13,000	3,509	51,129	12,854	67,146	Chromite.			
Coal (g).	"	3,478,344	6,739,153	3,745,716	7,226,462	3,786,107	7,303,597	4,173,108	8,224,288	4,925,051	10,283,497	5,777,319	13,742,178	6,486,325	12,699,243	7,466,681	15,210,877	7,960,564	15,942,833	8,254,595	16,592,231	Coal (g).			
Corundum.	"														3	300	53,115	768	80,180	993	109,545	Corundum.			
Feldspar.	"		(b) 2,545	972	(b) 2,583	1,400	3,290	2,500	6,250	3,000	6,000	318	1,112	5,350	10,700	7,576	18,966	11,083	23,745	452	11,760	Feldspar.			
Fire-clay.	"	1,329	3,492	842	1,805	2,118	5,759	670	1,680	599	1,295	1,245	4,130	3,979	5,920	2,741	4,283	2,639	3,523	1,097	8,592	Fire-clay.			
Graphite.	"	220	6,150	139	9,455	436	16,240	436	16,240	13,698	1,310	24,179	1,922	31,040	2,210	38,780	1,095	28,300	728	23,745	452	11,760	Graphite.		
Grindstones.	"	3,475	31,932	3,713	33,310	4,572	42,340	4,935	44,775	4,511	43,265	5,539	53,450	4,581	45,690	6,433	49,118	5,538	48,302	4,649	42,782	Grindstones.			
Gypsum.	"	226,178	202,608	207,032	178,061	239,691	244,531	219,256	232,515	244,566	257,329	252,101	259,009	293,799	340,148	332,045	359,277	314,489	388,459	345,961	373,474	Gypsum.			
Limestone for flux.	"	34,579	32,916	37,462	36,140		31,273		33,913	31,153	51,826	44,286	52,966	39,352	169,399	183,162	293,594	277,452	249,251	211,278	177,595	Limestone for flux.			
Lithographic stone.	"		2,000																				Lithographic stone.		
Manganese ore.	"	125	8,464	123	(b) 3,975	15	1,166	50	1,600	1,581	20,004	30	1,800	440	4,820	172	4,062	91	2,775	66	2,740	Manganese ore.			
Mica.	Lbs.		65,000		60,000		76,000		118,375		163,000		166,000		160,000		135,904		177,847	439	160,777	Mica.			
Mineral pigments—																							Mineral pigments.		
Baryta.	Tons.				715	571	3,060	1,125	5,533	720	4,402	1,337	7,605	653	3,842	1,096	3,957	1,163	3,931	1,382	3,702	Baryta.			
Ochres.	"	1,339	14,600	2,362	16,045	3,905	23,560	2,226	17,450	3,919	20,000	1,966	15,398	2,233	16,735	4,955	30,495	6,266	32,760	3,925	24,995	Ochres.			
Mineral waters.	Galls.	739,382	126,048	706,372	111,736	749,691	141,477	355,000	100,000		100,000		75,000		100,000		100,000		100,000		100,000	Mineral waters.			
Molybdenite.	Lbs.																						Molybdenite.		
Moulding sand.	Tons.	6,765	13,530	5,739	11,478	5,485	10,931	10,572	21,038	13,724	27,430	6,181	12,316	14,705	29,410	13,352	27,651	3,658	7,256	3,423	6,790	Moulding sand.			
Natural gas.	Tons.		423,032		276,301		325,873		322,123		387,271		417,094		339,476		195,992		202,210		328,376	Natural gas.			
Peat.	Tons.																						Peat.		
Petroleum (h).	Bbls.	726,138	1,086,738	726,822	1,155,647	709,857	1,011,546	758,391	1,061,747	808,570	1,202,020	710,498	1,151,007	622,392	1,008,275	539,624	951,190	486,637	1,348,974	503,474	935,895	Petroleum (h).			
Phosphate (Apatite).	Tons.	1,822	9,565	570	3,420	908	3,984	733	3,665	3,000	18,000	1,415	7,106	1,033	6,280	856	4,953	1,323	8,214	817	4,590	Phosphate (Apatite).			
Precious stones.	Tons.																						Precious stones.		
Pyrites.	Tons.	34,198	102,594	33,715	101,155	38,910	116,730	32,218	128,872	27,687	110,748	40,031	155,164	35,261	130,544	35,616	138,939	33,982	127,713	37,180	134,033	Pyrites.			
Quartz.	"				10	50		284	570	600	1,260												Quartz.		
Salt.	"	52,376	160,455	43,060	169,693	5																			

(a) Value at mine, quarry or works.

(b) Not reported.

(c) Copper contents of ore, matte, &amp;c., at the average market price for the year.

(d) Onnes, fine, calculated at value of \$20.07 per oz.

(e) Lead contents of ore, matte, &amp;c., at average market price for year.

(f) Nickel.

(g) Includes coal used in making coke. For coke production see article on coal and coke.

(h) Crude oil calculated from official inspection returns up to end of 1900; figures for 1901, 1902, 1903 and 1904 represent sales of crude oil. Values computed at average yearly price per barrel (of 35 imp. gallons).

NOTE.—The above figures represent the summary statements incorporated in the annually issued reports of the Section, those for the earlier years being corrected and revised to make the method of statement conform with that adopted for recent years. The differing type shows the increases, decreases, &c., as compared with the previous year, as follows:—Heavy faced type, increase; ordinary type, decrease; ordinary type with †, same as previous year; ordinary type with ‡, neither increase nor decrease to record, the figures for previous year not being available.

(i) Reports only.

(j) Mostly structural materials.

(k) Pig iron from Canadian ore only. Previous to 1900 the production of iron has been entered as ore, the figures for pig iron for these years are given however in the body of the report.

(l) Figures for 1900, 1901 and 1902 represent the excess of the total production of iron ore in Canada over the quantity of Canadian ore used in Canadian furnaces. Figures for 1903 and 1904 represent estimated exports. The figures of exports for these five years, as published by the Department of Customs, are believed to be overestimated.



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1896

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To Dr. ROBERT BELL,  
Acting Director, Geological Survey.

SIR,—I beg herewith to hand you the annual report of the Mines Section giving the completed and revised information descriptive of the Mineral Industries of Canada for 1904.

This has been preceded by an advance statement of the Mineral Production, dated 21st February, 1905, which, as usual, was only provisional and subject to revision,

Complete data relating to the mineral industries cannot be obtained until well on in the year following that dealt with, so that the issue of the final report is necessarily delayed. With contemplated changes in arrangements it is believed that a much earlier issue will be possible in the future.

Besides the preparation of the accompanying report, the staff of the Section has, as usual, been kept busy in many other kindred directions, such as answering numerous enquiries regarding the mineral resources, the mining and metallurgical industries of the country, as well as in collecting, filing and indexing all available information regarding the same. Mining districts have been visited, and studied as far as time and means permitted.

Acknowledgment of the work performed by the staff of the Section is heartily accorded in respect of all its functions.

I am Sir,

Your obedient servant,

OTTAWA, MINES SECTION.  
30th March, 1906.

ELFRIC DREW INGALL.







## EXPLANATORY NOTES.

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### YEAR AND TON USED.

The year referred to throughout this report is the calendar year, except for the figures of imports, which refer to the fiscal year ending June 30. The ton is that of 2,000 pounds, unless otherwise stated.

### EXPORTS AND IMPORTS.

The figures given throughout the report referring to exports and imports are compiled from data obtained from the books of the Customs Department, and will occasionally show discrepancies, which, however, there are no means of correcting.

The exports and imports under the headings of each province do not necessarily represent the production and consumption of the province; e.g., material produced in Ontario is often shipped from Montreal and entered there for export, so falling under the heading, Quebec.

NOTE.—N.E.S. = Not elsewhere specified.

### VALUES ADOPTED.

The values of the metallic minerals produced, as per returns to this Department, are calculated on the basis of their metallic contents at the average market price of the metal for the current year. Spot values have been adopted for the figures of production of the non-metallic minerals.

### GENERAL NOTES.

As in the past, care is taken to avoid interference with private interests in the manner of publishing results, and all returns of production of individual mines are treated as confidential, unless otherwise arranged with those interested. The confidence of the mining community, thus gained, has resulted in an increasingly general response to our circulars, although to complete our data, personal application is still necessary in a small number of instances, and a yet more prompt



response on the part of all applied to, will help still further towards an earlier publication of the material.

The figures given throughout the reports are based, as far as possible, upon returns obtained direct from the various operators, or from official data, and the totals are checked by comparison with railway shipments, exports, and all other available sources of information. It can be therefore fairly claimed, that they are as accurate as it is possible to make such figures.

After investigation of the subject we have, however, found that in the nature of things, export and railway figures can only be taken as approximately correct in most instances. In the case of the export figures, entries are made, as a rule, by those having no technical knowledge of mineral substances, and in the case of the railways, but few of the shipments are actually weighed, so that car-load lots, for instance, may differ considerably from the theoretical load of the car.

The lists of operators given throughout the report are not put forward as complete in every case, only those known to be active being included. Producers finding their names omitted are invited to communicate with this office that they may be included in the next issue.

#### CORRECTION—ALTERATIONS.

Corrections and alterations have been made throughout this report wherever they seemed to be called for, according to more complete and reliable data, available since previous issues.

The tabulated statement given in the folded sheet at the beginning of the report, represents a compilation of all the similar statements found in previous reports, re-modelled and further revised wherever possible.



INTRODUCTION.

The grand total of the Mineral Production of Canada for 1904 is valued in the accompanying general table at \$60,073,897. In comparison with that for 1903, these figures show a falling off of \$1,666,616 or about 2·7 per cent. In 1886 when the collection of mineral statistics was begun by the Mines Section, the mineral output of the country was valued at a little over ten million dollars, so that in a period of eighteen years, the amount realized annually has increased some six times.

In the following table will be found the amount of increase and decrease in the valuation of the output in the leading industries. The greatest decrease, that of gold production, is over two and a third millions of dollars and is due chiefly to the considerable drop in the output of the precious metals from the Yukon placers (\$1,750,000) although supplemented by a falling off in the other districts. This decrease has been enhanced by a smaller output in copper, nickel, petroleum, etc. Against the decrease are to be set considerable increases in pig iron, lead, silver, asbestos, coal, etc. The industries dealt with in the tables represent over 86 per cent of the whole output and are thus illustrative of the more important features of the industry as a whole.

Products.	Increases.	Decreases.
	Value.	Value.
	\$	\$
Gold.....		2,381,073
Copper.....		342,852
Iron (pig iron Canadian ore) .....	300,026	
Lead.....	848,659	
Nickel.....		783,051
Silver.....	337,453	
Asbestos.. ..		296,595
Coal. ....	649,398	
Gypsum .....		14,985
Natural gas.....	126,166	
Petroleum.....		113,079
Salt.....	24,261	
Cement.....	112,992	
Total difference in above .....	2,398,955	3,931,635
	1,532,680	
	3,931,635	



MINERAL  
PRODUCTION  
OF CANADA.

Below is given the proportional increases and decreases in the different leading industries whose contributions to the grand total aggregate nearly 86 per cent of the whole. It will be noted that whilst there were increases both in quantity and value in most of the important branches of the mineral industry, the marked decreases are exhibited in the case of gold, copper, nickel, gypsum and petroleum. As these branches of the industry are responsible for over 46 per cent of the whole output, the lessened production in these instances has had an important effect.

Products.	Quantity.		Value.	
	Increase.	Decrease.	Increase.	Decrease.
Metallic—				
Copper .....		3·05		6·07
Gold.....		12·64		12·64
Pig iron (from Canadian ore only) .	62·41		42·39	
Pig iron (from both home and im- ported ores).....	1·87			1·46
Lead .....	106·91		110·42	
Nickel.....		15·564		15·654
Silver.....	11·85		19·74	
Non-metallic—				
Asbestos and asbestic. ....	16·29		31·90	
Coal .....	3·69		4·07	
Gypsum.....	10·01			3·86
Natural gas.....			62·39	
Petroleum.....	3·46			10·78
Salt.....	11·25		8·15	
Portland cement.. ....	45·02		11·94	

The following table gives the percentage contributions of the various industries to the grand total and enables an opinion to be formed, in a general way, of their relative importance.



## SESSIONAL PAPER No. 26a

## PROPORTIONATE VALUE OF DIFFERENT MINERAL PRODUCTS, 1904.

MINERAL  
PRODUCTION  
OF CANADA.

Products.	Contri- buting over 10 p.c.	Contri- buting between 10 and 1 p.c.	Contri- buting under 1 p.c.	Total.
1 Coal .....	27.62			
2 Gold .....	27.40			
3 Copper .....		8.83		
4 Nickel .....		7.02		
5 Bricks (estimated) .....		4.96		
6 Silver .....		3.41		
7 Building stone (estimated) .....		3.21		
8 Lead .....		2.69		
9 Cement .....		2.22		
10 Asbestos .....		2.04		
11 Pig iron (from Canadian ores) .....		1.68		
12 Petroleum .....		1.56		
13 Lime (estimated) .....		1.29		
14 Sewer pipe .....			0.73	
15 Gypsum .....			0.62	
16 Natural gas .....			0.54	
17 Salt .....			0.54	
17 Sundry under 1 per cent. ....			3.64	
Total .....	55.02	38.91	6.07	100.00

In the following table are compared the proportional contributions of the several provinces to the total output of the Dominion. As the figures given have been reduced to a uniform basis of valuation, the comparative figures are as nearly accurate as is possible.

## PRODUCTION BY PROVINCES, 1904.

Province.	Value of Production.	Per cent.
	\$	
Nova Scotia.....	11,212,746	18.7
New Brunswick.....	559,913	0.9
Quebec .....	3,688,482	6.1
Ontario .....	12,582,843	20.9
Manitoba and N. W. Territories, including Yukon....	12,713,613	21.2
British Columbia. ....	19,316,300	32.2
Total .....	60,073,897	



MINERAL  
PRODUCTION  
OF CANADA.

The growth of the mineral industry of Canada as a whole and the comparison of its progress with that of the United States, is illustrated in the following table, the figures speaking for themselves.

YEAR.	CANADA.		UNITED STATES.	
	Increase or decrease per cent in Grand Total.	Production per capita.	Increase or decrease per cent in Grand Total.	Production per capita.
	p.c.	\$ cts.	p.c.	\$ cts.
1904.....	decr. 2·70	10·47	decr. 9·18	15 75
1903.....	" 2·08	11·18	incr. 12·64	17·77
1902.....	" 3·73	11·67	" 4·16	15 57
1901.....	incr. 3·42	12·40	" 2·60	14·03
1900.....	" 30·06	11·99	" 10·10	14·02
1899.....	" 28·13	9 33	" 39·86	12 84
1898.....	" 34·89	7·32	" 10·61	9 38
1897.....	" 26 90	5 52	" 1·33	8 66
1896.....	" 8·79	4 40	" ·21	8 73
1895.....		4·09	.....	8·90
1890.....	} 64·00 {	3·50	} 38·97 {	9 89
1886.....		2·23		7 76

The figures to be found in the reports of the Department of Trade and Commerce relating to exports of mineral substances have been selected and compiled to form the two following tables.

It will be observed that the metallic products comprise the largest items in the table, gold alone accounting for about 48 per cent, copper nearly 13 per cent, silver about 5·8 per cent, iron and steel some 4 per cent, and nickel about 3·3 per cent. Under the heading of these chief mineral products about 74 per cent of the whole exports are accounted for. If to these we add the coal and coke at 13·4 per cent approximately, 12·6 per cent only is to be credited to the numerous other mineral substances.

Some interesting particulars as to the destination of the exports are given in the second table. The great bulk of the mineral exports go to the United States, the proportion representing 95·25 per cent of the total. Only some 3·5 per cent is credited to points within the



SESSIONAL PAPER No. 26a

British Empire, leaving but 1.25 per cent for a number of foreign countries.

MINERAL PRODUCTION OF CANADA.

EXPORTS.

MINERALS AND MINERAL PRODUCTS OF CANADA DURING CALENDER YEAR 1904.

Products.	Value.	Products.	Value.
Aluminum .....	\$ 298,388	Manufactures of metals, other than iron or steel ..	\$ 478,435
Antimony ore.....	7,237	Mica.....	198,482
Arsenic.....	6,900	Mineral pigments.....	7,260
Asbestos.....	1,160,887	" water.....	2,917
Barytes .....	5,178	Nickel.....	1,091,349
Bricks .....	5,357	Oil, crude.....	213
Cement .....	5,494	" refined.....	470
Clay, manufactures of.....	2,722	Ores unspecified.....	222,117
Chromite.....	60,336	Platinum.....	140
Coal .....	4,036,373	Phosphate.....	5,348
Coke.....	345,031	Plumbago, crude .....	9,609
Copper.....	4,226,214	" mfrs. of.....	6,958
Feldspar.....	29,263	Pyrites.....	49,911
Gold.....	15,737,477	Salt.....	4,186
Grindstones .....	26,895	Sand and gravel .....	129,803
" rough .....	8,717	Silver.....	1,904,394
Gypsum, crude.....	316,436	Stone unwrought.....	17,802
" ground .....	2,333	" wrought .....	4,760
Iron and steel.....	1,318,482	Other articles.....	18,523
Iron ore.....	401,738		
Lead.....	559,461		
Lime.....	73,838		
Manganese ore .....	2,706	Total .....	32,790,140

EXPORTS.

DESTINATION OF PRODUCTS OF THE MINE, DURING THE FISCAL YEAR, 1903-1904.

Destination.	Value.	Destination.	Value.
United States.....	\$32,025,193	Holland .....	\$10,806
Great Britain .....	641,072	Cuba.....	8,045
Newfoundland.....	413,574	Hawaii.....	5,864
Norway and Sweden.....	143,593	British Africa.....	5,464
British West Indies.....	79,480	Spain.....	1,939
France .....	63,463	Denmark.....	1,309
Germany.....	56,374	Portugal.....	413
China.....	40,876	Russia .....	400
St. Pierre Miquelon.....	35,029	Australia.....	293
British Africa.....	34,807	Argentine.....	108
Belgium.....	30,326		
Italy.....	28,311	Total.....	\$33,626,739



MINERAL  
PRODUCTION  
OF CANADA.

From the reports of the Trade and Commerce Department, the various items of imports of mineral and crude manufactured metallic materials have been selected and compiled to form the subjoined table, covering the fiscal year 1903-1904. Although the selection is necessarily made in a more or less arbitrary manner many interesting points come to light. In the items running over one million it will be noted that very much the largest, representing over 38 per cent of the grand total, is that including machinery, hardware and highly manufactured articles which would come in competition with the manufacturer rather than the miner and smelter. Semi-finished products of iron pig, blooms, bars, plates, &c., together with various iron alloys used as raw material by manufacturers of more finished products amount to over ten million dollars, or about 13 per cent. The country imports over \$20,000,000 worth of coal, of which about half is anthracite and half bituminous. The items before mentioned, although comprising but five entries out of the seventy-nine in the table, cover 77 per cent of the whole. Other items severally ranging in value between one and two and a half million dollars or from 1 to 3 per cent, include earthenware, copper and manufactures of cement, brass and manufactures of tin, and manufactures of mineral pigments, ores of metals; petroleum and products; precious stones. These constitute yet another 16.6 per cent which added to the 77 per cent, account for about 93 per cent of the total under fourteen heads. The remainder is made up of some sixty-four items covering a great variety of substances, many of which will doubtless be eventually replaced by home products, whilst others will continue to come in owing to the greater proximity of the foreign source of production and for other similar causes.



SESSIONAL PAPER No. 26a

## IMPORTS.

MINERAL AND MINERAL PRODUCTS FOR FISCAL YEAR 1903-1904.

MINERAL  
PRODUCTION  
OF CANADA.

Products.	Value.	Products.	Value.
Alumina.....	\$ 108,956	Lime.....	\$ 39,639
Alum and aluminous cake.	53,796	Litharge.....	32,633
Aluminium. . . . .	117,492	Lithographic stone.....	17,981
Antimony.....	8,228	Manganese, oxide of . . . .	7,051
"    salts, . . . . .	8,884	Magnesia . . . . .	5,754
Arsenic . . . . .	12,421	Marble and mfrs. of . . . .	181,511
Asbestos and mfrs. of.....	83,827	Mercury.....	80,658
Asphaltum. . . . .	139,026	Metallic alloys—	
Bells and gongs. . . . .	79,073	Babbit metal. . . . .	51,785
Bismuth. . . . .	893	Brass and mfrs. of.....	1,257,477
Blast furnace slags.....	6,808	Britannia metal . . . . .	35,466
Borax. . . . .	84,724	German silver.....	49,659
Bricks and tiles.....	295,421	Type metal.....	6,596
"    fire . . . . .	365,479	Mineral and bituminous	
Buhrstones.....	35	substances, N.E.S.....	43,137
Cement.....	1,014,713	Mineralogical specimens...	1,618
Chalk, prepared . . . . .	19,163	Mineral and metallic pig-	
Clays . . . . .	144,706	ments, paints and colours	1,138,945
Coal.....	20,113,554	Mineral water.....	721
"    tar and pitch.....	122,598	Nickel.. . . . .	14,682
Coke.....	765,123	Ores of metals, N.O.P.....	1,112,193
Copper and mfrs. of. . . . .	1,461,925	Paraffine wax . . . . .	18,440
Cryolite. . . . .	14,513	"    candles.....	9,078
Crucibles, clay or plumbago	28,773	Petroleum and products of.	1,906,759
Chloride of lime.....	46,863	Phosphate (fertilizer) . . . .	8,000
Earthenware.....	1,611,356	Platinum, mfrs. of.....	28,112
Electric carbons.....	88,773	Precious stones.....	1,206,437
Emery. . . . .	50,899	Pumice . . . . .	6,537
Feldspar, quartz, flint, &c.	19,280	Salt.. . . . .	412,268
Fullers' earth.....	5,554	Saltpetre.....	86,308
Fossils. . . . .	949	Sand and gravel.....	107,547
Gold and silver and mfrs. of	448,259	Slate and mfrs. of.....	86,057
Graphite and mfrs. of.....	40,592	Stone and mfrs. of.....	280,982
Gypsum, plaster of Paris, &c	4,272	Sulphate of copper.....	75,938
Iron and steel—		"    iron . . . . .	1,452
Pigs, scraps, blooms, &c.	1,560,028	Sulphur. . . . .	204,663
Rolled, bars, plates, &c.,		Sulphuric acid . . . . .	2,563
including chrome steel	8,485,196	Tufa calcareous.....	11,366
Ferro-silicon, ferro-man-		Tin and manufactures of..	2,389,557
ganes, &c . . . . .	75,554	Whiting. . . . .	42,507
Manufactures of, machi-		Zinc and mfrs. of.....	322,401
nery, hardware, &c....	30,502,168		
Kainite . . . . .	5,430	Total.....	79,512,967
Lead and mfrs. of.....	233,179		



PRECIOUS METALS.

PRECIOUS METALS.

Under this heading, the metals gold and silver are considered together. The rarer metals of the platinum group are considered under their respective names as platinum and palladium.

GOLD.

The total production of gold in Canada during the year 1904 was \$16,462,517, a decrease of \$2,381,073 as compared with 1903. Every province shows a lower figure, the main decrease being the Yukon's, the output of which was \$1,750,000 less in 1904 than in 1903. The increase in the Canadian production of gold was very rapid between 1896 and 1900, in which year it reached its maximum. It is also interesting to note that the Northwest Territories and British Columbia are together responsible for 98 per cent of the total production. Over seventy per cent is gold derived from working of placers ; the balance is from lode mining.

Statistics of the total production in Canada and the various provinces are shown in the following table.

TABLE 1.

PRECIOUS METALS.

GOLD.—ANNUAL PRODUCTION IN CANADA.

Calendar Year.	Ounces. Fine.	Value.	Calendar Year.	Ounces. Fine.	Value.
1887 . . . . .	57,465	\$ 1,187,804	1896 . . . . .	133,274	\$ 2,754,774
1888 . . . . .	53,150	1,098,610	1897 . . . . .	291,582	6,027,016
1889 . . . . .	62,658	1,295,159	1898 . . . . .	666,445	13,775,420
1890 . . . . .	55,625	1,149,776	1899 . . . . .	1,028,620	21,261,584
1891 . . . . .	45,022	930,614	1900 . . . . .	1,350,176	27,908,153
1892 . . . . .	43,909	907,601	1901 . . . . .	1,167,320	24,128,503
1893 . . . . .	47,247	976,603	1902 . . . . .	1,032,253	21,336,667
1894 . . . . .	54,605	1,128,688	1903 . . . . .	911,639	18,843,590
1895 . . . . .	100,806	2,083,674	1904 . . . . .	796,445	16,462,517

\*Calculated from the value at the rate of \$20.67 per ounce.



## SESSIONAL PAPER No. 26a

TABLE 2.

## PRECIOUS METALS.

PRECIOUS  
METALS.

GOLD—PRODUCTION BY PROVINCES AND DISTRICTS, CALENDAR YEAR 1904.

Provinces.	*Ounces. Fine.	Value.
Nova Scotia.....	(b) 10,363	\$ 214,209
Quebec.....	140	2,900
Ontario.....	(b) 1,935	40,000
North-west Territories—		
Yukon District.....	(a) 507,983	10,500,000
Saskatchewan River.....	(a) 24	500
British Columbia.....	(c) 276,000	5,704,908
Total.....	796,445	16,462,517

\* Calculated from the value at the rate of \$20.67 per ounce.

(a) Placer gold.

(b) Gold from vein mining.

(c) As follows: Gold from placer mining... ..\$1,115,300

"                    "                    "                    ..... 4,589,608

\$5,704,908

## NOVA SCOTIA.

The figures for this province show a very large decrease as compared with the output for 1903, but this does not necessarily prove a falling off in the industry. As a matter of fact several mines have done very extensive development work to the detriment of the output; the small individual miner who has been the rule up to now, is fast giving place to companies on a large scale who can work, profitably, much lower grade ores.

According to the report of Mr. Wetherbee of the Nova Scotia Mines Department, "The Government anticipating a special discussion on the question of deep mining, on which they had legislated during the previous session, employed Mr. Faribault of the Geological Survey, to make a special report on the subject which was gone into very fully. One direct result of this discussion was the amendment of the above legislation, so that aid to a deep shaft would be given by the Government to the whole sinking, from the surface to a depth of 2000 feet, instead of requiring the miner to do the first 500 feet of work at his own expense as provided by the first act. This amendment brought forth several bona fide applications for the aid almost immediately. In some of the districts to which these applications applied Mr. Faribault's services were again used in reporting on their suitability. The districts where this aid was asked, include Isaacs Harbour, Malaga, Caribou and Sherbrooke.

It should be particularly mentioned, that the past season has marked a stage in Nova Scotia gold mining not before reached, two mines having attained vertical depths of 1000 feet or over, and at both places (over 100 miles apart) was gold found, presumably in paying quantities".



PRECIOUS METALS.

TABLE 3.  
PRECIOUS METALS.  
GOLD.—NOVA SCOTIA:—ANNUAL PRODUCTION.

Calendar Year.	Value.	Calendar Year	Value.
1862.....	\$141,871	1884.....	\$313,554
1863.....	272,448	1885.....	432,971
1864.....	390,349	1886.....	455,564
1865.....	496,357	1887.....	413,631
1866.....	491,491	1888.....	436,939
1867.....	532,563	1889.....	510,029
1868.....	400,555	1890.....	474,990
1869.....	348,427	1891.....	451,503
1870.....	387,392	1892.....	389,965
1871.....	374,972	1893.....	381,095
1872.....	255,349	1894.....	389,338
1873.....	231,122	1895.....	453,119
1874.....	178,244	1896.....	493,568
1875.....	218,629	1897.....	562,165
1876.....	233,585	1898.....	538,590
1877.....	329,205	1899.....	617,604
1878.....	245,253	1900.....	598,553
1879.....	268,328	1901.....	546,963
1880.....	257,823	1902.....	627,357
1881.....	209,755	1903.....	527,806
1882.....	275,090	1904.....	214,209
1883.....	301,207		

Table 4 which follows gives the tonnage of ore treated every year since 1862, and the average yearly yield. Table 5 gives the total tonnage per district since the beginnig of the industry.

TABLE 4.  
PRECIOUS METALS.  
GOLD.—NOVA SCOTIA: ORE TREATED AND YIELD OF GOLD PER TON.

Calendar Year.	Tons Treated.	Yield of Gold per Ton.	Calendar Year.	Tons Treated.	Yield of Gold per Ton.
1862.....	6,473	\$21·91	1884.....	25,186	12·44
1863.....	17,000	16·02	1885.....	28,890	14·98
1864.....	21,431	18·21	1886.....	29,010	15·70
1865.....	24,421	20·32	1887.....	32,280	12·81
1866.....	32,157	15·28	1888.....	36,178	12·08
1867.....	31,384	16·96	1889.....	39,160	13·02
1868.....	32,259	12·41	1890.....	42,749	11·11
1869.....	35,144	19·91	1891.....	36,351	12·42
1870.....	30,824	12·56	1892.....	32,552	11·98
1871.....	30,787	12·17	1893.....	42,354	8·99
1872.....	17,089	14·94	1894.....	55,357	7·04
1873.....	17,708	13·05	1895.....	60,600	7·47
1874.....	13,844	12·87	1896.....	69,169	7·13
1875.....	14,810	14·76	1897.....	73,192	7·68
1876.....	15,490	15·08	1898.....	82,774	6·50
1877.....	17,369	18·95	1899.....	112,226	5·50
1878.....	17,989	13·63	1900.....	87,390	6·85
1879.....	15,936	16·83	1901.....	91,948	5·32
1880.....	13,997	18·42	1902.....	93,842	6·68
1881.....	16,556	12·66	1903.....	103,856	5·08
1882.....	21,081	13·04	1904.....	45,436	4·71
1883.....	25,954	\$11·60			



SESSIONAL PAPER No. 26a

TABLE 5.

PRECIOUS  
METALS.

PRECIOUS METALS.

GOLD—NOVA SCOTIA :—PRODUCTION OF THE DIFFERENT DISTRICTS FROM 1862  
TO 1904, INCLUSIVE.

Districts.	Tons of Ore crushed.	Total Yield.				Average Yield per ton of 2000 lbs.
		Oz.	Dwt.	Grs.	Value at \$19.00 per oz.	
					\$	
Brookfield.....	87,777	39,220	15	18	745,195	8 49
Caribou .....	168,034	53,924	15	7	1,024,571	6 10
Central Rawdon..	13,340	10,121	11	21	192,310	14 42
Fifteen Mile Stream	42,483	18,800	...	5	357,200	8 41
Lake Catcha.....	18,565	15,040	10	18	285,770	15 39
Malaga.....	24,787	17,486	12	4	332,246	13 40
Montague.. ..	27,006	40,359	2	20	766,824	28 39
Oldham.....	51,655	55,174	7	21	1,048,314	20 29
Renfrew .. ..	52,211	45,409	14	13	862,785	16 52
Salmon River .....	104,136	34,100	11	21	647,911	6 32
Sherbrooke.....	312,776	158,856	16	13	3,018,280	9 65
Stormont.....	305,304	88,515	8	19	1,681,793	5 51
Tangier. ....	40,457	23,098	5	2	438,867	10 85
Uniacke .....	64,415	43,632	8	21	829,016	12 87
Waverly....	155,908	70,833	12	23	1,345,839	8 63
Wine Harbour....	68,165	39,465	17	3	749,851	11 00
Other districts.....	128,078	80,318	18	17	1,526,060	11 91
Total.....	1,665,097	834,359	11	6	15,852,832	9 52



PRECIOUS  
METALS.

Table 6 gives the production by district for the year 1904.

TABLE 6.

PRECIOUS METALS.

GOLD.—NOVA SCOTIA: DISTRICT DETAILS, CALENDAR YEAR, 1904.

Districts.	Mills.	Tons Crushed.	Total Yield of Gold.			Average Yield of Gold per Ton.		
			Oz.	Dwt	Grs.	Oz.	Dwt.	Grs.
Ardoise.....	1	7	...	4	0	..	..	14
Brookfield.....	2	8,247	2,329	5	19	..	5	15
Moose River.....	2	2,466	137	18	0	..	1	3
Caribou....	4	7,518	1,569	7	0	..	4	4
Clam Harbour.....	1	56	50	4	9	..	17	22
Carleton.....	1	103	64	8	0	..	12	12
Ecum Secum.....	2	365	105	0	0	..	5	18
Harrigan Cove.....	2	276	187	10	0	..	13	14
Kemptville.....	1	165	44	4	0	..	5	8
Lake Catcha.....	2	60	88	7	0	1	9	10
Leipsigate.....	1	4,450	1,329	14	0	..	5	23
McKay Settlement.....	1	43	7	18	8	..	3	16
Montague.....	1	841	267	1	9	..	6	5
Oldham.....	1	527	748	3	0	1	8	9
Renfrew.....	1	636	151	0	0	..	4	18
Salmon River.....	1	534	202	5	0	..	7	13
Sherbrooke.....	4	8,445	1,032	12	12	..	2	10
Stormont.....	3	4,441	766	7	4	..	3	10
South Uniacke.....	1	1,066	455	11	12	..	8	13
Mount Uniacke.....	1	528	245	2	6	..	9	7
Whiteburn.....	1	162	57	13	0	..	7	3
Wine Harbour.....	2	4,443	1,376	3	10	..	6	4
Gold River.....	1	57	53	9	23	..	18	18
Mortared.....			4	6	11	..		
Total.....		45,436	11,273	16	3	..	4	22

QUEBEC.

The gold of the province of Quebec, with the exception of a very small amount, is derived from desultory working of the Beauce region placers and from the pyritous ores of the Eastern Townships which are used primarily for the manufacture of sulphuric acid



TABLE 7.  
PRECIOUS METALS.  
GOLD. QUEBEC :— ANNUAL PRODUCTION.

PRECIOUS  
METALS.

Calendar Year.	Value.	Calendar Year.	Value.
1877.....	\$12,057	1891.....	\$ 1,800
1878.....	17,937	1892.....	12,987
1879.....	23,972	1893.....	15,696
1880.....	33,174	1894.....	29,196
1881.....	56,661	1895.....	1,281
1882.....	17,093	1896.....	3,000
1883.....	17,787	1897.....	900
1884.....	8,720	1898.....	6,089
1885.....	2,120	1899.....	4,916
1886.....	3,981	1900.....	Nil.
1887.....	1,604	1901.....	3,000
1888.....	3,740	1902.....	8,073
1889.....	1,207	1903.....	3,712
1890.....	1,350	1904.....	2,900

ONTARIO.

This province shows a very heavy decline in the output of gold for the year. In 1904 this only reached \$40,000, which is less than twenty-five per cent of the production for 1903. This was derived mainly from several mines in the Lake of the Woods district, one in Eastern Ontario and also from the treatment of the matte made from the Sudbury ores.

TABLE 8.  
PRECIOUS METALS.  
GOLD.—ONTARIO :—ANNUAL PRODUCTION.

Calendar Year.	*Ounces. Fine.	Value.
1887.....	327	\$ 6,760
1888.....		
1889.....		
1890.....		
1891.....	97	2,000
1892.....	344	7,118
1893.....	708	14,637
1894.....	1,917	39,624
1895.....	3,015	62,320
1896.....	5,563	115,000
1897.....	9,158	189,294
1898.....	12,864	265,889
1899.....	20,395	421,591
1900.....	14,392	297,495
1901.....	11,845	244,837
1902.....	11,119	229,828
1903.....	9,097	188,036
1904.....	1,935	40,000

\*Calculated from the value at the rate of \$20.67 per ounce.



PRECIOUS METALS.

NORTH-WEST TERRITORIES.

Practically the whole output of gold of the North-west Territories is attributable to the Yukon, as only five hundred dollars was produced from the Saskatchewan river. The Yukon production reached its maximum in 1900, and since then it has gradually declined, owing to the exhaustion of the richer ground. In 1904 the figures show a decrease to less than half the production of 1900.

TABLE 9.  
PRECIOUS METALS.  
GOLD.—NORTH-WEST TERRITORIES :—PRODUCTION.

Calendar Year.	Yukon District.		Saskatchewan River.	
	*Ounces. Fine.	Value.	*Ounces Fine.	* Value.
		\$		\$
1885 )				
1886 )	4,838	100,000	...	...
1887..	3,387	70,000	102	2,100
1888...	1,935	40,000	58	1,200
1889..	8,466	175,000	968	20,000
1890.....	8,466	175,000	194	4,000
1891.....	1,935	40,000	266	5,500
1892 .....	4,233	87,500	508	10,506
1893...	8,515	176,000	466	9,640
1894.....	6,047	125,000	725	15,000
1895... ..	12,095	250,000	2,419	50,000
1896.....	14,514	300,000	2,661	55,000
1897.....	120,948	2,500,000	2,419	50,000
1898.....	483,793	10,000,000	1,209	25,000
1899.....	774,069	16,000,000	726	15,000
1900.....	1,077,649	22,275,000	242	5,000
1901.....	870,827	18,000,000	726	15,000
1902.....	701,500	14,500,000	484	10,000
1903.....	592,646	12,250,000	48	1,000
1904 ... ..	507,983	10,500,000	24	500
Total.....	5,203,846	107,563,500	14,245	294,446

\* Calculated from the value at the rate of \$20.67 per ounce.



SESSIONAL PAPER No. 26a

The following statement of gold production of the Yukon, royalty paid, &c., is taken from the report of the Timber and Mines Branch of the Department of the Interior.

PRECIOUS  
METALS.

Fiscal Year.	Total Gold Produc- tion.	Total Exemption.	Royalty Collected on.	Royalty Paid.
	\$	\$	\$	\$
1898.....	3,072,773	339,845	2,732,928	273,292
1899.....	7,582,283	1,699,657	5,882,626	588,262
1900.....	9,809,464	2,501,744	7,307,720	730,771
1901.....	9,162,082	1,927,666	7,236,522	592,660
1902.....	9,566,340	1,199,114	8,367,225	331,436
1903.....	12,113,015	.....	12,113,015	302,893
1904.....	10,790,663	.....	10,790,663	272,217

BRITISH COLUMBIA.

The production of gold of this province for 1904 is \$5,704,908 which is a diminution of \$168,128 when compared with the output for 1903. Of this total \$1,115,300 is derived from placer workings, and \$4,589,608 is from lode mining. 'The greater part of the gold obtained from lode mining in British Columbia, is found in connexion with other metals and only separated or collected by smelting, probably not 5% of the product being obtained from stamp mills. The lode gold product for 1904 was \$4,589,608 and was \$223,008 less than in 1903, due to the diminished output of the Rossland and Nelson districts.'

TABLE 10.  
PRECIOUS METALS.  
GOLD-BRITISH COLUMBIA:—ANNUAL PRODUCTION.

Calendar Year.	Value.	Calendar Year.	Value.
1858.....	\$ 705,000	1882.....	\$ 954,085
1859.....	1,615,072	1883.....	794,252
1860.....	2,228,543	1884.....	736,165
1861.....	2,666,118	1885.....	713,738
1862.....	2,656,903	1886.....	903,651
1863.....	3,913,563	1887.....	693,709
1864.....	3,735,850	1888.....	616,731
1865.....	3,491,205	1889.....	588,923
1866.....	2,662,106	1890.....	494,436
1867.....	2,480,868	1891.....	429,811
1868.....	2,372,972	1892.....	399,525
1869.....	1,774,978	1893.....	379,535
1870.....	1,336,956	1894.....	530,530
1871.....	1,799,440	1895.....	1,266,954
1872.....	1,610,972	1896.....	1,788,206
1873.....	1,305,749	1897.....	2,724,657
1874.....	1,844,618	1898.....	2,939,852
1875.....	2,474,904	1899.....	4,202,473
1876.....	1,786,648	1900.....	4,732,105
1877.....	1,608,182	1901.....	5,318,703
1878.....	1,275,204	1902.....	5,961,409
1879.....	1,290,058	1903.....	5,873,036
1880.....	1,013,827	1904.....	5,704,908
1881.....	1,046,737		



PRECIOUS METALS.

Table 11 is very interesting as it shows the relative importance of the different producing district.

TABLE 11.

PRECIOUS METALS.

GOLD: BRITISH COLUMBIA.—PRODUCTION BY DISTRICTS—1904.

Districts.	Gold, Placer.		Gold, Lode.	
	Ounces.	Value.	Ounces.	Value.
Cariboo		\$		\$
Cariboo Division . . . . .	15,650	313,000		
Quesnel " . . . . .	7,500	150,000		
Omineca " . . . . .	580	11,600		
Cassiar—				
Atlin Lake Division . . . .	26,500	530,000		
All other divisions. . . . .	575	11,500	766	15,833
East Kootenay—				
Fort Steele Division. . . .	*1,000	20,000		
Windermere—Golden . . . .	50	1,000		
West Kootenay—				
Ainsworth Division . . . . .			2	41
Nelson " . . . . .	*150	3,000	14,100	291,447
Slocan and Slocan City. . . .			160	3,307
Trail Creek. . . . .			133,095	2,751,074
All other divisions. . . . .	*50	1,000	3,615	74,722
Lillooet . . . . .	1,725	34,500	4	83
Yale. . . . .				
Grand Forks, etc. . . . .	150	3,000	55,505	1,147,288
Similkameen. . . . .	125	2,500		
Yale. . . . .	1,560	31,200	183	3,783
Coast and other districts. . . .	*150	3,000	14,612	302,030
Totals. . . . .	55,765	1,115,300	222,042	4,589,608

Estimated.

The oldest and largest producing district is that of Rossland or Trail Creek in West Kootenay, and figures concerning its output may prove of interest.



SESSIONAL PAPER No. 26a

The following tables show the production of the Rossland mines and illustrate the average results attained during the past eleven years.—

PRECIOUS  
METALS.

NET PRODUCTION PER SMELTER RETURNS.

Year.	Ore, tons, 2,000 lb.	Gold, oz.	Silver, oz.	Copper, lb.	Value.
1894.....	1,856	3,723	5,357	106,229	\$ 75,510
1895.....	19,693	31,497	46,702	840,420	702,459
1896.....	38,075	55,275	89,285	1,580,635	1,243,360
1897.....	68,804	97,024	110,068	1,819,586	2,097,280
1898.....	111,282	87,343	170,804	5,232,011	2,470,811
1899.....	172,665	102,976	185,818	5,693,889	3,229,086
1900.....	217,636	111,625	167,378	2,071,865	2,739,300
1901.....	283,360	132,333	970,460	8,333,446	4,621,299
1902.....	329,534	162,146	373,101	11,667,807	4,893,395
1903.....	360,786	145,353	209,537	8,652,127	4,255,958
1904.....	312,991	133,095	181,830	7,119,876	3,760,866
Total..	1,916,682	1,062,390	2,510,340	53,117,891	30,089,324

AVERAGE NET SMELTER RETURNS OR ACTUAL YIELD PER TON.

Year.	Gold.	Silver.	Copper.	Value.
	Ounces.	Ounces.	Per cent.	\$ cts.
1894.....	2.00	2.89	2.85	40.69
1895.....	1.60	2.41	2.10	35.67
1896.....	1.45	2.34	2.08	32.65
1897.....	1.42	1.60	1.32	30.48
1898.....	.78	1.54	2.35	22.10
1899.....	.596	1.07	1.65	18.70
1900.....	.513	.769	.476	12.58
1901.....	.467	3.424	1.470	16.31
1902.....	.492	1.132	1.770	14.85
1903.....	.403	.581	1.199	11.80
1904.....	.425	.581	1.137	12.01
Average 1,916,682 tons....	.554	1.309	1.385	15.70

As has been noticed above, the greater part of British Columbia gold is obtained from the treatment of ores containing other metals, and it is recovered in the process of smelting and refining; only a very small proportion of the lode gold is from free-milling ores.

The different districts producing the auriferous sulphide ores are referred to under the heading of copper and lead.

As to placer mining it may be interesting to quote from the Provincial Mineralogist's report for 1904. "The placer gold mining industry of the province this past year produced \$1,115,300 in gold, an increase of about 5 per cent over the preceding year, thanks to a successful season in the Atlin camp.....The output of the



PRECIOUS  
METALS.

camp was about \$530,000, an increase of 20 per cent over the preceding year, a most encouraging showing, especially as the dredge, from which so much was expected, failed mechanically to handle the dirt. The two hydraulic companies which started up last summer made very creditable productions and promise to do better next year. . . . . In the Dease Lake district the output this year was only about one-third of what it was the previous year, as the most important property in the camp did not produce this past season, being engaged exclusively in installing a new and larger plant.

"In the Cariboo District the placer output was almost exactly the same as last year, the Barkerville camp being just the same, while a deficit in the Omineca section was just about balanced by an increased production in the Grand Forks section, where the Consolidated Cariboo Company, although only having water to sluice 88 days, produced \$90,000 of gold.

"In the Fraser River section, placer mining is chiefly carried on on the river bars at extreme low water, the results this year have been very disappointing, as the usual very low water did not occur, since the winter's snow starting to go very early, went gradually, with no extremes of high or low water, so these bars could not be worked to the usual extent . . . . .

"Dredging for gold has not, as yet, been a commercial success, despite all attempts to solve this problem. The difficulties are mechanical but, therefore, none the less difficult to surmount. Many of the propositions which have been started have had ground sufficiently rich to pay very handsomely if the conditions were right—that is, freedom from boulders or hard clay cement, a dredgible bedrock, and the gold not in too fine a state of division. The dredge in Atlin attempted to handle dirt that proved too tough for it, and from reports it would appear that the Lillooet dredge was too weakly constructed to stand the work, and the constant stoppages for repairs interfered with what promised to be a very successful run.

"As yet the only attempt made in this province to work a placer gold property with a steam shovel was in Fort Steele Mining Division and described in the report for 1903. The conditions there were scarcely favourable and the shovel was not equipped with an auxiliary elevator to take the gravel from the shovel to the sluice—which appears to be requisite. This was to have been provided for this shovel but is not yet in place, and the machine has not been worked this season."

## SILVER.

The total figures of production of silver for 1904, show a marked increase as compared with those of 1903. The contributing provinces



were British Columbia, Ontario, Yukon Territory and Quebec, the relative amount of each being in the order named. The increase in production is largely due to the bounty on lead granted by the Federal Government, which led to the reopening of some mines of argentiferous galena in the East Kootenay district. Another new source of the metal is the district recently opened on the northwest shore of Lake Timiskaming, which is responsible for most of the Ontario production.

PRECIOUS METALS.

TABLE 12.  
PRECIOUS METALS.  
SILVER.—ANNUAL PRODUCTION.

Year.	Ounces.	Value.	Average Price per ounce.	Year.	Ounce.	Value.	Average Price per ounce.
		\$	Cts.			\$	Cts.
1887....	355,083	347,271	98·0	1896....	3,205,343	2,149,503	67·06
1888....	437,232	410,198	94·0	1897....	5,558,446	3,323,395	59·79
1889....	383,318	358,785	93·6	1898....	4,452,333	2,593,929	58·26
1890...	400,687	419,118	104·6	1899...	3,411,644	2,032,658	59·58
1891....	414,523	409,549	98·0	1900....	4,468,225	2,740,362	61·33
1892....	310,651	272,130	86·0	1901....	5,539,192	3,265,354	58·95
1893....		330,128	77·0	1902...	4,291,317	2,238,351	52·16
1894....	847,697	534,649	63·0	1903....	3,198,581	1,709,642	53·45
1895....	1,578,275	1,030,299	65·28	1904...	3,577,526	2,047,095	57·22

TABLE 13.  
PRECIOUS METALS.  
SILVER.—PRODUCTION BY PROVINCES.

CALENDAR YEAR.	ONTARIO.		QUEBEC.		BRITISH COLUMBIA.		YUKON TERRITORY.	
	Ounces.	Value.	Ounces.	Value.	Ounces.	Value.	Ounces.	Value.
		\$		\$		\$		\$
1887..	190,495	186,304	146,898	143,666	17,690	17,301		
1888..	208,064	195,580	149,388	140,425	79,780	74,993		
1889..	181,609	169,986	148,517	139,012	53,192	49,787		
1890..	158,715	166,016	171,545	179,436	70,427	73,666		
1891..	225,633	222,926	185,584	183,357	3,306	3,266		
1892..	41,581	36,425	191,910	168,113	77,160	67,592		
1893..		8,689		126,439		195,000		
1894..			101,318	63,830	746,379	470,219		
1895..			81,753	53,369	1,496,522	976,930		
1896..			70,000	46,942	3,135,343	2,102,561		
1897..	5,000	2,990	80,475	48,116	5,472,971	3,272,289		
1898..	85,000	49,521	74,932	43,655	4,292,401	2,500,753		
1899..	202,000	120,352	40,231	23,970	2,939,413	1,751,302	230,000	137,034
1900..	161,650	99,140	58,400	35,817	3,958,175	2,427,548	290,000	177,857
1901..	151,400	89,250	41,459	24,440	5,151,333	3,036,711	195,000	114,953
1902..	145,000	75,632	42,500	22,163	3,917,917	2,043,586	185,900	96,965
1903..	17,777	9,502	28,600	15,287	2,996,204	1,601,471	156,000	83,382
1904..	206,875	118,376	15,000	8,583	3,222,481	1,843,935	133,170	76,201



PRECIOUS METALS.

BRITISH COLUMBIA.

The total production of this province amounted to 3,222,481 ounces, derived mainly from two districts, the Slocan and the Fort Steele. The output is 226,277 ounces greater than in 1903, which may be chiefly attributable to the reopening of the St. Eugene mine, an argentiferous galena vein which could not operate profitably without the Government bounty on lead. The two districts above named are responsible for more than 75 per cent of the production, the balance having been produced in all other parts of the province.

TABLE 14.  
PRECIOUS METALS.  
SILVER :—BRITISH COLUMBIA.—PRODUCTION BY DISTRICTS.

District.	1901.	1902.	1903.	1904.
	Ounces.	Ounces.	Ounces.	Ounces.
Cariboo.....		4		
Cassiar.....	82	224	53	185
Kootenay East—				
Fort Steele division.....	718,451	114,506	28,537	590,186
Other divisions.....	34,181	27,918	59,006	20,964
Kootenay West—				
Ainsworth division.....	324,913	320,719	108,678	90,004
Nelson.....	377,167	273,870	190,003	198,795
Slocan.....	2,276,259	2,223,810	1,466,931	1,540,170
Trail Creek.....	970,460	373,101	209,537	181,830
Other divisions.....	133,774	241,584	392,354	148,201
Lillooet.....			12	
Yale—				
Osoyoos division.....	241,489	219,798	320,749	245,155
Yale.....	74	542	15	625
Coast and other districts.....	74,483	121,841	220,329	206,366
Totals.....	5,151,333	3,917,917	2,996,204	3,222,481

NET PRODUCTION, PER SMELTER RETURNS, OF THE SLOCAN MINES.

Year.	Ore, Tons, 2,000 lb.	Silver oz.	Lead, lbs.	Gold. oz.	Values.
1895.....	9,514	1,122,770	9,666,324	6	\$1,045,600
1896.....	16,560	1,954,258	18,175,074	152	1,854,011
1897.....	33,567	3,641,287	30,707,705	193	3,280,686
1898.....	30,691	3,068,648	27,063,595	60	2,619,852
1899.....	21,507	1,891,025	16,660,910	14	1,740,372
1900.....	25,520	2,121,176	19,365,743	5	2,063,908
1901.....	25,493	2,276,259	15,025,759	244	1,865,752
1902.....	21,153	2,223,810	13,651,144	353	1,608,827
1903.....	12,412	1,466,931	9,880,469	257	1,126,986
1904.....	70,296	1,540,170	10,611,227	160	1,236,858
Total.....	266,713	21,306,334	170,807,950	1,444	18,442,852



## SESSIONAL PAPER No. 26a

## AVERAGE YIELD PER TON.

PRECIOUS  
METALS.

Year.	Silver.	Lead.	Values.
1895.....	118.0 oz.	50.8	\$109.90
1896.....	118.0 "	54.9	111.95
1897.....	108.5 "	45.7%	97.73
1898.....	100.0 "	44.1	85.36
1899.....	87.9 "	38.7%	80.92
1900.....	83.1 "	37.9%	80.87
1901.....	89.3 "	29.5	73.19
1902.....	105.1 "	32.3%	76.06
1903.....	118.2 "	39.8%	90.80
1904.....	21.9 "	7.5	17.59
	79.8 oz.	32.0%	\$ 69.14

## ONTARIO.

In this province a new silver district has just been discovered and opened out. It is responsible for practically the total output of silver of Ontario. This is in the township of Coleman, on the line of the Timiskaming and Northern Ontario Railway, and on the west side of Lake Timiskaming. The deposits of the district contain silver, nickel, cobalt and arsenic. They are connected with rocks of Huronian age. As to the activity now prevailing in the district, the report of the Ontario Bureau of Mines says: "All the silver produced in 1904 came from the mines of Coleman township, save a small quantity extracted from the Sudbury nickel-copper mattes. The output was 206,875 ounces, valued at \$111,887. The producing properties were the Larose, owned by Messrs Timmins, Dunlap and McMartin; the Chambers-Ferland properties including Cobalt Hill and the Little Silver Mine now owned by the Nipissing Mining Company, Limited, New York, of which Mr. Ellis P. Earle is the head; the New Ontario owned by Mr. W. G. Trethewey of Toronto; and the McKinley-Darragh, of which Messrs Gorman and Company of Ottawa, otherwise the Cobalt and Silver Mining Company, are proprietors. The ore was all sold to Mr. E. P. Earle and delivered to him at New York. Some of the shipments carried very high values, several 20 ton car lots netting as much as \$37,000 or \$38,000, the main returns being from the silver, though the other constituents, cobalt, nickel and arsenic each contributed to the result.....

"The new camp enjoys first-rate shipping facilities, since the Timiskaming and Northern Ontario Railway runs directly through it and a station called Cobalt has been established on the shore of a lake of the same name within easy distance of the chief producing properties. The freight rate from Cobalt to New York is \$7 per ton."



PRECIOUS METALS.

In the Yukon Territory, the silver is recovered from the placer gold, which contains an appreciable proportion of it.

The silver of the province of Quebec is derived mostly from the treatment of the pyritous ores of the Eastern Townships.

The exports of silver ores from the whole of Canada as given in the Customs returns will be found in the subjoined table.

TABLE 15.  
PRECIOUS METALS.  
SILVER.—EXPORTS OF ORE.

Calendar Year.	Value.	Calendar Year.	Value.
1886.....	\$ 25,957	1896.....	\$ 2,271,959
1887.....	206,284	1897.....	3,576,391
1888.....	219,008	1898.....	2,902,277
1889.....	212,163	1899.....	1,623,905
1890.....	204,142	1900.....	2,341,872
1891.....	225,312	1901.....	2,026,727
1892.....	56,688	1902.....	1,820,058
1893.....	213,695	1903.....	1,989,474
1894.....	359,731	1904.....	1,904,394
1895.....	994,354		

COPPER.

There are but few mines in Canada where ores are worked solely for their copper contents. The production is almost altogether obtained from ores which are worked also on account of their values in nickel, sulphur, the precious metals, etc. In Quebec the copper is derived from the pyrites deposits near Sherbrooke which are primarily mined for the manufacture of sulphuric acid. The production in Ontario is practically represented by the copper contents of the nickel-copper ores of the Sudbury district, whilst in British Columbia the metal is obtained from ores which although low grade for copper are workable on account of carrying values in the precious metals.

The figures of production for 1904 are to be found in table No. 1, following, from which it will be seen that the steady increase in the general production of the past number of years has received a slight



## SESSIONAL PAPER No. 26a

check, there being a decrease to record of 1,300,732 lbs. in the quantity COPPER. and of \$342,852 in the value. \*

By references to tables 5, 6, 7 it will be seen that the responsibility for this decrease rests with the Eastern Canadian districts, Quebec and Ontario both showing considerable decreases as against an increase in British Columbia.

The production by Provinces was as follows :—

Quebec . . . . .	760,000 lbs.
Ontario . . . . .	4,913,594 "
British Columbia . . . . .	35,710,128 "
<hr/>	
Total . . . . .	41,383,722 "

The great preponderance of British Columbia as a contributor to the total Canadian production of this metal is very apparent from the above figures. During 1904, the western province has to its credit over 86 per cent of the whole, whereas about ten years since its product was a little over one-tenth of the present figure and about equalled the output of Ontario.

The relationship of the provinces can be seen by reference to the figures in tables 5-6-7.

It is seen that Quebec has been dwindling ever since 1891. Ontario has shown no considerable fluctuations but has averaged distinctly upwards, whilst British Columbia, beginning at almost nothing in 1894, shows a phenomenal increase in the production, and, rapidly increasing, becomes the predominant feature in the industry since 1899.

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\* In order to state the production in terms of its money value so as to enable comparison to be made, one year with another for a long period of years, the final market values of the metal in the shipments of ore, matte, etc., are still adopted for the general tables. This is the first and only fixed definite datum line to which all the varying metal-bearing products of different years and different districts, can be referred, and this method of valuation is the only one which can be stated in terms of value so as to show the fluctuations in the industry and other features of its history. In different districts and at different times the practice is apt to vary in regard to the point to which are carried the processes of the extraction of the useful constituents of the raw ores, etc. so that spot values are too diverse and changeable locally to be added together getting at grand totals.



COPPER.

COPPER.

TABLE 1.

ANNUAL PRODUCTION.\*

Calendar Year.	Lbs.	Increase or Decrease.		Value.	Increase or Decrease.		Average Price per Pound.
		Lbs.	%		\$	%	
				\$			Cts.
1886. ....	3,505,000			385,550			11·00
1887. ....	3,260,424	244,576	6·99	366,798	18,752	4·86	11·25
1888. ....	5,562,864	<u>2,302,440</u>	<u>70·60</u>	927,107	<u>560,309</u>	<u>152·70</u>	<u>16·66</u>
1889. ....	6,809,752	<u>1,246,888</u>	<u>22·40</u>	936,341	<u>9,234</u>	<u>0·99</u>	<u>13·75</u>
1890. ....	6,013,671	796,081	11·69	947,153	<u>10,812</u>	<u>1·15</u>	<u>15·75</u>
1891. ....	9,529,401	<u>3,515,730</u>	<u>58·46</u>	1,226,703	<u>279,550</u>	<u>29·51</u>	<u>12·87</u>
1892. ...	7,087,275	2,442,126	25·63	818,580	408,123	33·27	11·55
1893. ....	8,109,856	<u>1,022,381</u>	<u>14·40</u>	871,809	<u>53,229</u>	<u>6·50</u>	<u>10·75</u>
1894. ....	7,708,789	401,067	4·94	736,960	134,849	15·46	9·56
1895. ....	7,771,639	<u>62,850</u>	<u>·81</u>	836,228	<u>99,268</u>	<u>13·47</u>	<u>10·76</u>
1896. ...	9,393,012	<u>1,621,373</u>	<u>20·86</u>	1,021,960	<u>185,732</u>	<u>22·21</u>	<u>10·88</u>
1897. ....	13,300,802	<u>3,907,790</u>	<u>41·60</u>	1,501,660	<u>479,700</u>	<u>46·94</u>	<u>11·29</u>
1898. ....	17,747,136	<u>4,446,334</u>	<u>33·43</u>	2,134,980	<u>633,320</u>	<u>42·17</u>	<u>12·03</u>
1899. ....	15,078,475	2,668,661	15·04	2,655,319	<u>520,339</u>	<u>24·37</u>	<u>17·61</u>
1900. ...	18,937,138	<u>3,858,663</u>	<u>25·59</u>	3,065,922	<u>410,603</u>	<u>15·46</u>	<u>16·19</u>
1901. ....	37,827,019	<u>18,889,881</u>	<u>99·75</u>	6,096,581	<u>3,030,659</u>	<u>98·84</u>	<u>16·117</u>
1902. ....	38,804,259	<u>977,240</u>	<u>2·58</u>	4,511,383	1,585,198	26·00	11·626
1903. ....	42,684,454	<u>3,880,195</u>	<u>10·00</u>	5,649,487	<u>1,138,104</u>	<u>25·23</u>	<u>13·235</u>
1904. ....	41,383,722	1,300,732	3·05	5,306,635	342,852	6·07	12·823

\* The production is altogether represented by the copper contained in ore, matte, &c., produced and shipped valued at the average market price for the year for fine copper in New York.

Note.—In the above table, increases are shown underlined, and decreases in the ordinary way.



SESSIONAL PAPER No. 26a

TABLE 2.

COPPER.

COPPER.

EXPORTS OF COPPER IN ORE, MATTE, ETC.

Calendar Year.	Pounds.	Value.
		\$
1885.....		262,600
1886.....		249,259
1887.....		137,966
1888.....		257,260
1889.....		168,457
1890.....		398,497
1891.....		348,104
1892.....		277,632
1893.....	4,792,201	269,160
1894.....	1,625,389	91,917
1895.....	3,742,352	236,965
1896.....	5,462,052	281,070
1897.....	14,022,610	850,336
1898.....	11,572,381	840,243
1899.....	11,371,766	1,199,908
1900.....	23,631,523	1,741,885
1901.....	32,488,872	3,404,908
1902.....	26,094,498	2,476,516
1903.....	38,364,676	3,873,827
1904.....	38,553,282	4,216,214

TABLE 3.

COPPER.

IMPORTS OF PIGS, OLD, SCRAP, ETC.

Fiscal Year.	Lbs.	Value.	Fiscal Year.	Lbs.	Value.
		\$			\$
1880.....	31,900	2,130	1892.....	343,600	14,894
1881.....	9,800	1,157	1893.....	168,300	16,331
1882.....	20,200	1,984	1894.....	101,200	7,397
1883.....	124,500	20,273	1895.....	72,062	6,770
1884.....	40,200	3,180	1896.....	86,905	9,226
1885.....	28,600	2,016	1897.....	49,000	5,449
1886.....	82,000	6,969	1898.....	1,050,000	80,000
1887.....	40,100	2,507	1899.....	1,655,000	246,740
1888.....	32,300	2,322	1900.....	1,144,000	180,990
1889.....	32,300	3,288	1901.....	951,500	152,274
1890.....	112,200	11,521	1902.....	1,767,200	225,832
1891.....	107,800	10,452	1903.....	2,038,400	252,594
1904 { Copper, old and scrap or in blocks . . . . .Duty free				309,300	33,597
{ Copper in pigs or ingots.....				1,806,000	236,718
Total, 1904.....				2,115,300	270,315



COPPER.

TABLE 4.

COPPER.

IMPORTS OF MANUFACTURES.

Fiscal Year.			Value.
			\$
1880			123,061
1881			159,163
1882			220,235
1883			247,141
1884			134,534
1885			181,469
1886			219,420
1887			325,365
1888			303,459
1889			402,216
1890			472,668
1891			563,522
1892			422,870
1893			458,715
1894			175,404
1895			251,615
1896			285,220
1897			264,587
1898			786,529
1899			551,586
1900			1,090,280
1901			951,045
1902			1,281,522
1903			1,291,635

1904.	Copper in bolts, bars and rods, in coils, or otherwise in lengths not less than 6 feet, unmanufactured.....	Duty.	Pounds.	\$
		Free.	5,632,400	749,498
	Copper, in strips, sheets or plates, not planished or coated, &c .....	"	1,861,000	296,914
	Copper tubing in lengths not less than 6 feet, and not polished, bent or otherwise manufactured .....	"	195,836	44,909
	Copper rollers, for use in calico printing, imported by calico printers for use in their own factories.. ..	"		2,862
	Copper and manufactures of :—			
	Nails, tacks, rivets and burrs or washers..	30 p. c.		3,879
	Wire, plain, tinned or plated.....	15 "	141,490	25,263
	Wire cloth, &c.....	25 "		1,033
	All other manufactures of, N.O.P.....	30 "		67,252
Total .....				1,191,610

QUEBEC.

Owing to the pyritous ores mined in this province carrying a small percentage of copper, there is a production to report, the figures relating to which will be found in table 5 below. The ore is primarily used in the manufacture of acid chiefly at works in the United States, although some is thus utilized in Canada. The residues



## SESSIONAL PAPER No. 26a

left after burning the pyrites are treated in the United States for the Copper extraction of copper, etc.

TABLE 5,  
COPPER.  
QUEBEC :—PRODUCTION.

Calendar Year.	Pounds.	Value.
		\$
1886.....	3,340,000	367,400
1887. . . . .	2,937,900	330,514
1888.....	5,562,864	927,107
1889. . . . .	5,315,000	730,813
1890.....	4,710,606	741,920
1891. . . . .	5,401,704	695,469
1892.....	4,883,480	564,042
1893.....	4,468,352	480,348
1894.....	2,176,430	208,067
1895.....	2,242,462	241,288
1896.....	2,407,200	261,903
1897.....	2,474,970	279,424
1898.....	2,100,235	252,658
1899.....	1,632,560	287,494
1900.....	2,220,000	359,418
1901.....	1,527,442	246,178
1902. . . . .	1,640,000	190,666
1903.....	1,152,000	152,467
1904 . . . . .	760,000	97,455

## ONTARIO.

In Ontario the production is practically that resulting from the working of the nickel-copper deposits of the Sudbury districts. The product of working these pyrrhotite-chalcopryrite deposits is exported in the shape of nickel-copper high grade matte, no metallic products resulting from the smelting process.



COPPER.

Outside of the operations above mentioned, shipments of ore were made from a few smaller mines operating at different points in the province.

TABLE 6.

COPPER.

ONTARIO :-- PRODUCTION.

Calendar Year.	Pounds.	Value.
		\$
1886.....	165,000	18,150
1887.....	322,524	36,284
1888.....		
1889.....	1,466,752	201,678
1890.....	1,303,065	205,233
1891.....	4,127,697	531,234
1892.....	2,203,795	254,538
1893.....	3,641,504	391,461
1894.....	5,207,679	497,854
1895.....	4,576,337	492,414
1896.....	3,167,256	344,598
1897.....	5,500,652	621,023
1898.....	8,375,223	1,007,539
1899.....	5,723,324	1,007,877
1900.....	6,740,058	1,091,215
1901.....	8,695,831	1,401,507
1902.....	7,408,202	861,278
1903 ..	7,172,533	949,285
1904.....	4,913,594	630,070

BRITISH COLUMBIA.

The mining of copper-bearing ores in this province has been prosecuted with ever increasing success for the past ten years. In that period the production has enlarged from 324,680 lbs. to 35,710,128 lbs. or considerably over ten times. Examination of table 7 will show that although the rate of increase has been very variable, every year of the period has shown a most encouraging growth in the industry.

The ores are chiefly sulphurets carrying values in the precious metals. The chief contributing districts are Boundary Camp with an average percentage of copper for 1904 of 1.38 per cent, the Rossland Camp with an average percentage of copper of 1.14 per cent and the Coast districts with an average content of copper of 3.68 per cent.



SESSIONAL PAPER No. 26a

TABLE 7.

COPPER.

COPPER.

BRITISH COLUMBIA—PRODUCTION.

Calendar Year.	Copper contained in ores, matte, &c.	Increase.		Value.
		Lb.	%	
1894 .....	324,680			\$ 31,039
1895 .....	952,840	628,160	193	102,526
1896 .....	3,818,556	2,865,716	301	415,459
1897 .....	5,325,180	1,506,624	39	601,213
1898 .....	7,271,678	1,946,498	36	874,783
1899 .....	7,722,591	450,913	6	1,359,948
1900 .....	9,977,080	2,254,489	29	1,615,289
1901 .....	27,603,746	17,626,666	177	4,448,896
1902 .....	29,636,057	2,032,311	7	3,445,488
1903 .....	34,359,921	4,723,864	16	4,547,735
1904 .....	35,710,128	1,350,207	4	4,579,110

TABLE 8.

COPPER.

BRITISH COLUMBIA—PRODUCTION BY DISTRICTS.

—	1901.	1902.	1903.	1904.
	Pounds.	Pounds.	Pounds.	Pounds.
Cassiar .....		6,258	2,249	8,900
East Kootenay .....	3,272	8,048	2,730	5,472
West Kootenay—				
Ainsworth .....		9,537		
Nelson .....	1,599,449	491,144	346,218	220,500
Slocan .....			181	
Trail Creek .....	8,333,446	11,667,807	8,652,127	7,119,876
All other .....		1,000	3,294	
Yale—				
Boundary .....	14,511,787	14,955,582	18,485,542	22,066,407
Ashcroft, Kamloops .....	39,920		6,409	328,380
Coast districts .....	3,115,872	2,496,681	6,861,171	5,960,593
	27,603,746	29,636,057	34,359,921	35,710,128

There are a number of smelters in the province treating the mixed ores of the various districts. At the Trail smelter is produced a matte running from 50 to 55 per cent in copper. This is sent to the Tacoma smelter, where it is further treated, yielding a matte carrying about 98 per cent of the metal. This blister copper is then shipped to eastern refineries.



5-6 EDWARD VII., A. 1906

## COPPER.

At the Northport smelter high grade matte is produced, which goes to New York for bessemerizing and refining. The blister copper (99 per cent) product of the Granby smelter is also shipped east for refining. At the Greenwood smelter since the recent installation of the bessemerizing plant blister copper nearly 99 per cent is produced in place of 45 per cent matte as formerly.

## IRON.

## IRON

*Iron Ore.*—The Canadian production of iron ore for 1904 totalled 219,046 tons instead of 264,294 tons as compared with 1903. For this decrease of 45,248 tons, Ontario is almost wholly responsible, as Nova Scotia and Quebec show increases. On the other hand no production is recorded for British Columbia, but this last province has always been a small and desultory producer.

## NOVA SCOTIA.

The production of iron ore in Nova Scotia is almost entirely due to the operations of the Londonderry Iron and Mining Company who are working several deposits of hematite and of carbonates of iron in Colchester county and one at Torbrook, Annapolis county. This last deposit has been described by Mr. H. Fletcher in our Summary Report for 1904.

## QUEBEC.

The main source of iron ore of this province is at present the deposits of bog iron ore which are found in the counties of St. Maurice, Champlain, Joliette, Vaudreuil, and Nicolet. The ore is treated at Radnor Forges and at Drummondville.

## ONTARIO.

This province is the most important iron ore producer of the Dominion. The decrease which we have to record this year is due to the temporary cessation in operations of the Sault Ste. Marie industries who were working the Helen Mine in the Michipicoten District. A few other mines working on smaller scales gave returns of production. But prospecting and development work in iron-bearing regions were very active all the year round. The districts which received special attention are the Timiskaming, Temagami, the Hutton, the Atikokan and the Michipicoten regions; a company is said to be contemplating the erection of a blast furnace at Port Arthur, for smelting the ores of the Atikokan range.



SESSIONAL PAPER No. 26a

BRITISH COLUMBIA.

There are numerous deposits of iron ore in this province but the IRON. production has always been irregular and desultory. It has been mined mainly as a flux for lead smelting operations. This province possesses features very favourable to the establishment of an iron industry. Systematic work on the known iron deposits would probably reveal large bodies, and there are several large fields of excellent coal. No production of iron ore is recorded this year.

TABLE 1.  
IRON.  
PRODUCTION OF ORE BY PROVINCES.

Calendar Year.	Nova Scotia.	Quebec.	Ontario.	British Columbia.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.
1886.....	44,388	.....	16,032	3,941	64,361
1887.....	43,532	13,401	16,598	2,796	76,330
1888.....	42,611	10,710	16,894	8,372	78,587
1889.....	54,161	14,533	.....	15,487	84,181
1890.....	49,206	22,305	.....	.....	76,511
1891.....	53,642	14,380	.....	950	68,979
1892.....	78,258	22,690	.....	2,300	103,248
1893.....	102,201	22,076	.....	1,325	125,602
1894.....	89,379	19,492	.....	1,120	109,991
1895.....	83,792	17,783	.....	1,222	102,797
1896.....	58,810	17,630	15,270	196	91,906
1897.....	23,400	22,436	2,770	2,099	50,705
1898.....	19,079	17,873	21,111	280	58,343
1899.....	28,000	19,420	25,126	2,071	74,617
1900.....	18,940	19,000	82,950	1,110	122,000
1901.....	18,619	15,489	272,538	7,000	313,646
1902.....	16,172	18,524	359,288	10,019	404,003
1903.....	40,335	12,035	209,634	2,290	264,294
1904.....	61,293	16,152	141,601	.....	219,046

TABLE 2.  
IRON.  
NOVA SCOTIA :—ANNUAL PRODUCTION OF ORE.  
(Previous to 1886).

Calendar Year.	Tons.	Calendar Year.	Tons.
1876.....	15,274	1881.....	39,843
1877.....	16,879	1882.....	42,135
1878.....	36,600	1883.....	52,410
1879.....	29,889	1884.....	54,885
1880.....	51,193	1885.....	48,129



IRON.

TABLE 3.

IRON.

EXPORTS OF IRON ORE.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
		\$			
1893.....	2,419	7,590	1899 .....	4,145	9,538
1894.....		21,294	1900.....	5,527	13,511
1895.....	1,571	3,909	1901*.....	306,199	762,283
1896.....	1,033	1,911	1902*.....	428,901	1,065,019
1897.....	403	811	1903*.....	368,233	922,571
1898.....	182	278	1904*.....	168,828	401,738

\*The export figures for the last four years are incorrect owing to a duplication of entries.

TABLE 4.

IRON.

EXPORTS OF IRON ORE.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
		\$			\$
1879.....	3,562	7,530	1892.....	7,707	36,935
1880.....	30,524	76,474	1893.....	7,811	26,114
1881.....	44,677	114,850	1894.....	1,859	9,026
1882.....	43,835	135,463	1895.....	2,315	5,743
1883.....	44,914	138,775	1896.....	14	35
1884.....	25,308	66,549	1897.....	1,320	2,492
1885.....	54,367	132,074	1898.....	260	402
1886.....	7,542	23,039	1899.....	1,849	4,968
1887.....	23,345	71,934	1900.....	4,327	7,689
1888.....	13,544	39,945	1901*.....	58,401	150,657
1889.....	24,752	60,289	1902*.....	525,983	1,303,901
1890.....	13,811	31,376	1903*.....	293,510	733,230
1891.....	14,648	32,582	1904*.....	233,850	579,883

\*See foot note to table 3, also table 4a, and remarks.



TABLE 4a.

IRON.

IRON.

IMPORTS OF IRON ORE INTO THE UNITED STATES FROM CANADA.\*

Year ending June 30.	Tons.	Year ending June 30.	Tons.
1893.....	6,880	1899.....	2,308
1894.....	269	1900.....	3,997
1895.....	2,394	1901.....	30,762
1896.....	35	1902.....	276,363
1897.....	2,263	1903.....	129,219
1898.....	1,172	1904.....	113,388

\* Compiled from the "Foreign Commerce and Navigation of the United States."

In referring to table 3, which is made up from the Customs returns, it will be noticed that the figures of exports of iron ore for the last few years are very large as compared with the figures of production. Practically all the exports of ore are into the United States and a comparison of tables 3-4 and 4a shows wide discrepancies. This has been found to be due to an error in the Canadian returns, resulting from a duplication in export entries. The great bulk of the foreign ore consumed comes from Newfoundland and from the United States lake districts. Small quantities are also imported from Cuba, Spain and Sweden.

*Pig Iron.*—The total quantity of pig iron shows a slight increase over the 1903 production, although the total value has decreased. Table 5 gives as full a presentment as possible in a tabular form, of the details of the industry, giving separately the proportion of Canadian ore used, the various kinds of fuel employed, &c.



IRON.

TABLE 5.  
IRON.  
Pig Iron Production : Consumption of Ore, Fuel, &c.

Calendar Year.	Iron Ore Consumed.		Fuel Consumed.				Flux Consumed.		Pig Iron Made.	
	Tons.	Value.	Charcoal.		Coke.		Tons.	Value.	Tons.	Value.
			Bushels.	Value.	Tons.	Value.				
1887...	60,434	\$ 130,808	940,400	\$ 48,593	30,248	\$ 89,123	3,333	\$ 5,877	24,827	\$ 366,192
1888...	54,956	102,343	804,286	41,800	28,031	82,986	2,197	4,709	21,799	313,235
1889...	65,670	126,064	755,800	41,568	33,289	94,791	3,044	6,525	25,921	499,872
1890...	57,304	117,880	589,860	29,493	32,832	97,659	1,241	2,638	21,772	331,688
1891...	60,935	130,955	441,812	22,091	30,626	98,402	2,170	2,868	23,891	368,901
1892...	96,948	250,966	1,121,365	78,291	50,882	152,311	1,740	1,797	42,443	637,421
1893...	124,053	296,979	1,302,720	90,976	58,711	163,849	6,621	13,539	55,947	790,283
1894...	108,871	223,861	1,173,970	53,958	52,373	142,303	7,653	14,571	49,967	646,447
1895...	93,208	218,336	789,561	31,582	48,540	139,475	3,089	5,396	42,454	586,736
1896...	(a) 96,560	200,887	756,600	32,256	(a) 48,660	106,939	1,407	2,288	67,268	924,129
	(b) 46,300	100,205			(b) 33,990	109,253				
1897...	(a) 53,658	131,705	1,031,800	43,230	(a) 35,800	71,600			58,007	738,701
	(b) 55,722	138,504			(b) 27,810	94,553				
1898...	(a) 57,881	151,760	836,400	41,820	(a) 31,952	63,904			77,015	912,395
	(b) 77,107	213,165			(b) 50,407	158,783				
1899...	(a) 66,384	216,322	1,928,025	87,858	(a) 44,844	134,532			102,940	1,377,306
	(b) 120,650	402,860			(b) 64,648	193,944				
1900...	(a) 71,341	184,191	1,799,737	82,408	(a) 45,021	180,084			96,575	1,501,698
	(b) 113,042	351,382			(b) 59,345	255,892				
1901...	(a) 156,613	544,144	1,835,736	100,978	(a) 205,796	539,328	2,039	6,117	274,376	3,512,923
	(b) 361,010	846,398			(b) 115,367	497,386				
1902...	(a) 125,664	429,753	2,146,623	118,275	(a) 360,593	898,518	1,615	5,006	357,902	4,243,541
	(b) 559,381	964,979			(b) 112,311	491,433				
1903...	(a) 82,035	247,229	2,322,030	152,717	(a) 350,190	819,016			297,885	3,742,710
	(b) 485,911	823,147			(b) 96,540	356,091				
1904...	(a) 180,932	489,687	3,477,470	191,404	(a) 257,182	729,585			303,454	3,687,985
	(b) 454,671	922,594			(b) 130,210	551,445				

(a) Canadian. (b) Imported.



SESSIONAL PAPER No. 26a

In the tabulated statement showing the mineral production of Can- Iron. ada, the production of pig iron from Canadian ore only is given. These figures have been arrived at by separating the total production at each furnace into two classes, viz.: pig iron from Canadian ore, and pig iron from imported ore, the separation being made on the basis of the Canadian and imported ore entering into the production of pig iron at each respective furnace.

The production for the past eight years separated in this way has been as follows :—

Calendar Year.	Pig iron from Canadian ore.	Pig iron from Imported ore.
	Tons.	Tons.
1896.....	40,720	26,548
1897.....	26,200	31,807
1898.....	30,553	46,462
1899.....	34,244	68,699
1900.....	35,387	61,188
1901.....	83,100	191,276
1903.....	71,664	286,238
1903....	42,052	255,833
1904.....	68,297	235,157

During the year there were ten furnaces in blast for varying periods, operated by the following companies :—

Dominion Iron and Steel Company, Sydney, C.B.—Furnace plant at Sydney.

Nova Scotia Steel and Coal Company, New Glasgow, N.S.—Furnace plant at Ferrona, N.S. New blast furnace being erected at Sydney Mines, C.B.

Londonderry Iron and Mining Co., Ltd., Londonderry, N.S.—Furnace plant at Londonderry.

Canada Iron Furnace Co., Montreal, Que.—Furnace plants at Radnor Forges, Que., and at Midland, Ont.

John McDougall and Co., Montreal, Que.—Furnace plant at Drummondville, Que.

Deseronto Iron Co., Deseronto, Ont.—Furnace plant at Deseronto, Ont.

Hamilton Steel and Iron Co., Hamilton, Ont.—Furnace near Hamilton, Ont.

The Algoma Steel Co. Ltd.,—Sault Ste. Marie, Ont.—Furnace plant at Steelton, Ont., near Sault Ste. Marie.



## IRON

The statistics of the production of steel, and of rolled iron and steel, in Canada as well as in the United States, are admirably presented in the Annual Statistical Report of the American Iron and Steel Association, and the following information concerning the production of steel and rolled iron and steel in Canada is taken from the above-mentioned report for 1904.

“The total production of steel ingots and castings in Canada in 1904 was 148,784 gross tons, against 181,514 tons in 1903, a decrease of 32,730 tons. Bessemer and open-hearth steel ingots and castings were made in each year. Almost all the open-hearth steel reported in 1903 and 1904 was made by the basic process. The direct steel castings made in 1904 amounted to 6,505 tons. Canada has not made crucible steel prior to the present year?

“The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1904, in gross tons.

Years.	Gross Tons.
1894.....	25,685
1895.....	17,000
1896.....	16,000
1897.....	18,400
1898.....	21,540
1899.....	22,000
1900.....	23,577
1901.....	26,084
1902.....	182,037
1903.....	181,514
1904.....	148,784

*Production of rolled iron and steel, in Canada.*

“The following table gives the production of all kinds of iron and steel rolled into finished forms in Canada from 1895 to 1904.

Years.	Gross Tons.
1895.....	66,402
1896.....	75,043
1897.....	77,021
1898.....	90,303
1899.....	110,642
1900.....	100,690
1901.....	112,007
1902.....	161,485
1903.....	129,516
1904.....	180,038



## SESSIONAL PAPER No. 26a

"The production of Bessemer and open-hearth steel rails in 1904 IRON. amounted to 36,216 gross tons, against 1,243 tons in 1903 ; structural shapes, 447 tons, against 1,983 tons in 1903 ; cut nails made by rolling mills and steel works having cut-nail factories connected with their plants, 99,000 kegs of 100 lbs. against 118,686 kegs in 1903 ; plates and sheets 3,102 tons, against 2,450 tons in 1903 ; all other finished rolled products, excluding muck and scrap bars, blooms, billets, sheet bars and other unfinished forms, 135,243 tons, against 118,541 tons in 1903.

"The total quantity of all kinds of iron and steel rolled into finished forms in Canada in 1904 amounted to 180,038 tons, against 129,516 tons in 1903, Of the 180,038 tons of finished iron and steel reported for 1904, about 126,850 tons were rolled from steel and 53,188 tons from iron.

"On December 31, 1904, there were eighteen completed rolling mills and steel works in Canada. In addition, three plants were being built and two plants were projected Of the completed plants, two were equipped for the manufacture of steel castings only, five for the manufacture of Bessemer or open-hearth steel ingots and rolled products, and eleven for the manufacture of rolled products only. Of the building plants, one was being equipped for the manufacture of steel castings by a special process, one for the manufacture of open-hearth steel ingots only, and one for the manufacture of merchant bar-iron, railway spikes, &c. One of the projected plants is to be equipped for the manufacture of skelp and bar-iron and the other for the manufacture of wire rods.

"Of the eighteen completed rolling mills and steel works in Canada on December 31, 1904, three were located in Nova Scotia, five in Quebec, nine in Ontario and one in New Brunswick. The building plants are in Nova Scotia, Ontario and Manitoba, and the projected plants are in Ontario."

*Bounties.*—Bounties on iron and steel made in Canada, were provided for by the Dominion Government in 1897 (Chapter 6 of Statutes of Canada, 1897). This Act was amended in 1899 (chapter 8, Statutes of Canada, 1899) and again in 1903 (Chapter 68, Statutes of Canada, 1903).

The payment by the Dominion Government on account of iron and steel bounties during the fiscal year ending June 30, 1904, were as



5-6 EDWARD VII., A. 1906

IRON.

follows, the figures having been compiled from the Auditor General's report for 1904 :—

## BOUNTIES ON PIG IRON, FISCAL YEAR 1904.

Company.	On Pig Iron from Canadian Ore.		On Pig Iron from Imported Ore.		Total Bounties.
	Tons.	Bounties.	Tons.	Bounties.	
		\$ cts.		\$ cts.	\$ cts.
Canada Iron Furnace Co., Ltd.—					
Midland, Ont. ....	8,766·66	23,670.06	25,392·22	45,706.01	69,376 07
Radnor Forges, Que....	5,195·95	14,029.07	1,944·26	3,499.62	17,528.69
Deseronto Iron Co. ....	498·00	1,344·60	9,480·00	17,064.00	18,408.60
Dominion Iron and Steel Co. ....			129,334·28	232,801·72	232,801·72
Electric Reduction Co., Ltd., Buckingham, Que..	270·38	730.02			730.02
Hamilton Steel & Iron Co..	18,907·45	51,050.10	32,546·82	58,584.25	109,634.35
John McDougall & Co. ....	1,862·63	5,029.09			5,029.09
Londonderry Iron & Mining Co., Ltd. ....	10,617·25	28,666.58			28,666.58
Nova Scotia Steel & Coal Co., Ltd. ....	325·74	882·16	28,291·59	50,924.87	51,807.03
	46,445·06	125,401.68	226,989·17	408,580.47	533,982.15

## BOUNTY ON PUDDLED IRON BARS.

Company.	Tons.	Bounty.
		\$ cts.
Hamilton Steel and Iron Co., Ltd. ....	4,321·86	11,668 99

## BOUNTY ON STEEL INGOTS.

Company.	Tons.	Bounties.
		\$ cts.
Dominion Iron and Steel Co., Ltd. ....	85,742·37	231,504 38
Hamilton Steel and Iron Co., Ltd. ....	13,574·46	36,551 04
Nova Scotia Steel and Coal Co. ....	29,568·44	79,834 75
	128,885·27	347,990 17



SESSIONAL PAPER No. 26a

BOUNTIES ON ARTICLES MANUFACTURED FROM STEEL.

IRON.

Company.	Tons.	Bounties.
Dominion Iron and Steel Co., Ltd —		\$ cts.
Rolled round steel wire rods.....	637 94	3,827 64
Hamilton Steel and Iron Co., Ltd.—		
Rolled angles.....	2,496 89	7,490 67
Montreal Rolling Mills Co.—		
Rolled round wire rods.....	257 50	1,545 00
Nova Scotia Steel and Coal Co., Ltd.—		
Rolled angles.....	794 07	2,457 54
Rolled plates.....	25 11	
	4,211 51	15,320 85

The following tables 6, 7, 8, 9, 10 and 11 illustrate the Canadian export and import trade of iron and steel products. They all cover the fiscal year ending June 30, 1904.

TABLE 6.

IRON.

EXPORTS OF IRON AND STEEL GOODS, THE PRODUCT OF CANADA.

Calendar Year 1904.	Quantity.	Value.
		\$
Stoves. .... No	1,366	17,642
Sewing machines. .... "	1,073	22,763
Typewriters..... "	4,240	130,115
Machinery, N.E.S ..... \$		356,848
Hardware, N.E.S..... "		120,070
Steel and manufactures of . .... "		332,932
Castings, N.E.S..... "		61,624
Scrap iron and steel.....Cwt	157,182	76,125
Pig iron .....Tons	21,016	200,363
Total.....		1,318,482



IRON.

TABLE 7.

IRON.

IMPORTS OF IRON, PIG, SCRAP, &c.

Fiscal Year.	Pig Iron.		Charcoal Pig Iron.		Old and Scrap Iron.		Wrought Scrap and Scrap Steel.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$		\$
1880	(a) 23,159	371,956	.....	.....	928	14,042	.....	.....
1881	(a) 43,630	715,997	.....	.....	584	8,807	.....	.....
1882	56,594	811,221	6,837	211,791	1,327	20,406	.....	.....
1883	75,295	1,085,755	2,198	58,994	709	7,776	.....	.....
1884	49,291	653,708	2,893	66,602	3,136	44,223	.....	.....
1885	42,279	545,426	1,119	27,333	3,552	46,275	.....	.....
1886	42,463	528,483	3,185	60,086	10,151	158,100	.....	.....
1887	46,295	554,388	3,919	77,420	17,612	220,167	(b) 79	1,086
Pig Iron, &c. (c)								
	Tons.	Value.						
		\$						
1888	48,973	648,012	.....	.....	.....	.....	23,293	297,496
1889	72,115	864,752	.....	.....	.....	.....	26,794	335,090
1890	87,613	1,148,078	.....	.....	.....	.....	47,846	678,574
1891	81,317	1,085,929	.....	.....	.....	.....	43,967	652,842
1892	68,918	886,485	.....	.....	.....	.....	32,627	433,695
Pig Iron. Charcoal Pig Iron. Cast Scrap Iron.								
	Tons.	Value.	Tons.	Value.	Tons.	Value.		
		\$		\$		\$		
1893	56,849	682,209	5,944	84,358	729	9,317	45,459	574,809
1894	42,376	483,787	2,906	34,968	78	771	30,850	369,682
1895	(d) 31,637	341,259	2,780	31,171	643	4,347	23,390	244,388
1896	(d) 36,131	394,591	917	11,726	93	741	13,607	157,996
1897	(d) 25,766	291,788	2,936	35,373	238	1,362	7,903	93,541
1898	(d) 37,186	382,103	2,250	23,533	1,559	13,251	(e) 48,903	534,577
1899	(d) 44,261	452,911	(f) 1,955	19,123	(f) 2,378	22,594	(e) 28,352	301,268
1900	(d) 49,767	811,490	(f) 1,816	38,736	(f) 13,747	150,681	(e) 38,753	638,505
1901	(d) 35,293	548,033	(f) 490	7,121	(f) 4,499	51,032	(e) 24,773	242,189
1902	39,978	585,077	(f) 38	726	(f) 3,048	38,958	(e) 36,150	520,909
1903	91,730	1,338,574	882	16,352	(f) 7,137	94,028	(e) 43,115	670,402
1904	62,515	894,728	.....	.....	(f) 11,385	149,923	(e) 21,027	298,806

- (a) Comprises pig-iron of all kinds.
- (b) From May 13 only.
- (c) These figures appear in Customs reports under heading 'Iron in pigs, Iron kentledge and cast scrap-iron.'
- (d) Includes iron kentledge. Duty \$2.50 per ton.
- (e) Scrap iron and scrap steel, old, and fit only to be remanufactured, being part of, or recovered from, any vessel wrecked in waters subject to the jurisdiction of Canada. Duty free.
- Iron or steel scrap, wrought, being waste or refuse, including punchings, cuttings and clippings of iron or steel plates or sheets, having been in actual use, crop ends of tin plate bars, blooms and rails, the same not having been in actual use. Duty \$1 per ton.
- (f) Duty \$2.50 per ton.



## SESSIONAL PAPER No. 26a

TABLE 8.

IRON.

IRON.

## IMPORTS OF FERRO-MANGANESE, &amp;C.

Fiscal Year.	Tons.	Value.
*1887 .....	123	\$ 1,435
*1888 .....	1,883	29,812
*1889 .....	5,868	72,108
*1890 .....	696	18,895
*1891 .....	2,707	40,711
*1892 .....	1,311	23,930
*1893 .....	529	15,858
*1894 .....	284	9,885
†1895 .....	164	5,408
†1896 .....	652	12,811
†1897 .....	426	9,233
†1898 .....	1,418	22,516
†1899 .....	1,160	22,539
†1900 .....	1,149	39,064
†1901 .....	1,512	38,954
†1902 .....	6,513	150,977
†1903 .....	6,350	162,710
†1904.....(Duty, 5 p.c.)	2,975	75,554

\*These amounts include :—Ferro-manganese, ferro-silicon, spiegel, steel bloom ends, and crop ends of steel rails, for the manufacture of iron or steel.

†Ferro-silicon, spiegeleisen and ferro-manganese.

TABLE 9.

IRON.

## IMPORTS : IRON IN SLABS, BLOOMS, LOOPS AND PUDDLED BARS, &amp;C.

Fiscal Year.	Cwt.	Value.	Fiscal Year.	Cwt.	Value.
1880.....	195,572	\$244,601	1892.....	64,397	\$ 56,186
1881. ....	111,666	111,374	1893.....	65,269	58,533
1882.....	203,888	222,056	1894.....	50,891	45,018
1883.....	258,639	269,818	1895.....	78,639	67,321
1884.....	252,310	264,045	1896.....	128,535	110,757
1885.....	312,329	287,734	1897.....	56,560	48,954
1886.....	273,316	248,461	1898.....	162,891	122,426
1887.....	522,853	421,598	1899.....	124,311	103,198
1888.....	110,279	93,377	1900.....	255,145	362,463
1889.....	80,383	67,181	1901.....	234,925	206,975
1890.....	15,041	45,923	1902.....	401,306	419,543
1891.....	41,567	38,931	1903.....	394,418	380,034
			1904*.....	200,295	216,571

\*Iron or steel ingots, cogged ingots, blooms, slabs, billets, puddled bars, and loops or other forms, N.O.P., less finished than iron or steel bars, but more advanced than pig-iron, except castings. Duty \$2 per ton.



IRON.

TABLE 10a.

IRON.

IMPORTS OF IRON AND STEEL GOODS.—1903-1904.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
Bar iron or steel rolled, whether in coils, bundles, rods or bars, comprising rounds, ovals, squares and flats and rolled shapes, N.O.P.....	Cwt. \$7 per ton.	646,439	1,024,256
Castings, iron or steel, in the rough, N.E.S.	8 25 %	.....	223,362
Canada plates, Russia iron, flat galvanized iron or steel sheets, terne plates and rolled sheets of iron or steel coated with zinc, spelter or other metal, of all widths or thicknesses, N.O.P.....	Cwt. 5 "	608,307	1,417,526
Iron or steel bridges or parts thereof, iron or steel structural work, columns, shapes or sections drilled, punched, or in any further stage of manufacture than as rolled or cast, N.E.S. ....	" 35 "	53,046	147,369
Malleable iron castings and iron or steel castings, N.E.S.....	" 25 "	4,685	16,430
Mould boards, or shares or plough plates land sides and other plates for agricultural implements, cut to shape from rolled plates of steel but not moulded, punched, or otherwise manufactured....	" 5 "	48,096	168,815
Iron or steel railway bars or rails of any form, punched or not punched, N.E.S., for railways, which term for the purposes of this item shall include all kinds of railways, street railways and tramways, even although the same are used for private purposes only, and even although they are not used or intended to be used in connection with the business of common carrying of goods or passengers.....	Tons. 30 "	10,600	263,284
Railway fish-plates and tie plates.....	" \$8 per ton.	7,000	208,246
Rolled iron or steel angles, tees, beams, channels, joists, girders, zeos, stars or rolled shapes, or trough, bridge, building, or structural rolled sections, or shapes not punched, drilled or further manufactured than rolled, N.E.S., and flat eye-bar blanks not punched or drilled .....	Cwt. 10 %	730,695	946,728
Rolled iron or steel hoop, band, scroll or strip, 8 inches or less in width, No. 18 gauge and thicker, N.E.S.....	" \$7 per ton.	48,081	82,295
Rolled iron or steel hoop, band, scroll or strip, thinner than No. 18 gauge, N.E.S.	" 5 %	38,125	71,807
Rolled iron or steel angles, tees, beams, channels, girders and other rolled shapes or sections, weighing less than 35 lbs. per lineal yard, not punched, drilled or further manufactured than rolled, N.O.P.	" \$7 per ton.	241,444	329,895
Rolled iron or steel plates or sheets, sheared or unsheared, and skelp iron or steel, sheared or rolled in grooves, N.E.S.....	" \$7 "	197,062	305,670
Rolled iron or steel plates, not less than 30 inches in width and not less than ¼ inch in thickness, N.O.P.....	" 10 %	418,838	575,932
Carried forward.....	.....	.....	5,781,615



## SESSIONAL PAPER No. 26a

TABLE 10a—*Continued.*

IRON.

IRON.

## IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
Brought forward.....			\$ 5,781,615
Rolled iron or steel sheets No. 17 gauge and thinner, N.O.P..... Cwt.	5 p. c.	235,637	509,904
Rolls of chilled iron or steel..... "	30 "	3,771	11,658
Skelp iron or steel, sheared or rolled in grooves, imported by manufacturers of wrought iron or steel pipe for use only in the manufacture of wrought iron or steel pipe in their own factories..... "	5 "	382,544	557,944
Swedish rolled iron and Swedish rolled steel nail rods under half an inch in diameter for the manufacture of horse-shoe nails.. "	15 "	9,234	17,095
Switches, frogs, crossings and intersections for railways..... "	30 "	9,367	24,616
Steel—chrome steel.. .. "	15 "	2,106	18,796
Steel plate, universal mill or rolled edge bridge plates imported by manufacturers of bridges..... "	10 "	154,960	220,692
Steel in bars, bands, hoops, scroll or strips, sheets or plates, of any size, thickness or width when of greater value than 2½c. per lb., N.O.P. .... "	5 "	146,287	650,318
Iron or steel beams, sheets, plates, angles, knees and cable chains for wooden, iron, steel, or composite ships or vessels..... "	Free.	40,983	66,488
Locomotive and car wheel tires of steel, in the rough..... "	"	38,832	95,750
Steel for saws and straw cutters cut to shape, but not further manufactured.... "	"	13,345	115,669
Crucible sheet steel, 11 to 16 gauge, 2½ to 18 inches wide, imported by manufacturers of mower and reaper knives for manufacture of such knives in their own factories..... "	"	8,117	33,504
Steel of No. 20 gauge and thinner, but not thinner than No. 30 gauge, for the manufacture of corset steels, clock springs and shoe shanks imported by the manufacturers of such articles for the exclusive use in the manufacture thereof in their own factories..... "	"	1,648	5,853
Steel valued at 2½ cents per lb. and upward, imported by the manufacturers of skates, for use exclusively in the manufacture thereof in their own factories.. .. "	"	1,661	5,546
Steel, under ½-inch in diameter, or under ½ inch square, imported by the manufacturers of cutlery, or of knobs, or of locks, for use exclusively in the manufacture of such articles in their own factories..... "	"	2,499	6,377
Carried forward.....			8,121,825



IRON.

TABLE 10a—Concluded.

IRON.

IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
Brought forward... ..			\$ 8,121,825
Steel, No. 12 gauge and thinner, but not thinner than No. 30 gauge, for the manufacture of buckle clasps, bed fasts, furniture casters and ice creepers, imported by the manufacturers of such articles, for use exclusively in the manufacture thereof in their own factories... .. Cwt.	Free.	1,103	4,231
Steel of No. 24 and 17 gauge, in sheets sixty-three inches long, and from 18 inches to 32 inches wide, imported by the manufacturers of tubular bow sockets for use in the manufacture of such articles in their own factories..... "	"	743	1,900
Steel for the manufacture of bicycle chains, imported by the manufacturers of bicycle chain for use in the manufacture thereof in their own factories.. .. "	"	496	2,024
Steel for the manufacture of files, augers auger bits, hammers, axes, hatchets, scythes, reaping hooks, hoes, hand rakes, hay or straw knives, windmills and agricultural or harvesting forks imported by the manufacturers of such or any of such articles for use exclusively in the manufacture thereof in their own factories ... "	"	73,953	162,511
Steel springs for the manufacture of surgical trusses imported by the manufacturers for use exclusively in the manufacture thereof in their own factories..... "	"	78	805
Flat spring steel, steel billets and steel axle bars, imported by manufacturers of carriage springs and carriage axles for use exclusively in the manufacture of springs and axles for carriages or vehicles other than railway or tramway, in their own factories .. .. "	"	81,968	132,871
Spiral spring steel for spiral springs for railways, imported by the manufacturers of railway springs for use exclusively in the manufacture of railway spiral springs in their own factories .. .. "	"	29,423	54,665
Malleable iron or steel castings, in the rough for the manufacture of scissors, and hand shears when imported by manufacturers of scissors and hand shears to be used in making such articles in their own factories, O.C..... "	"	69	929
Steel for the manufacture of cutlery when imported by manufacturers of cutlery to be used in their own factories in the manufacture of such article, O.C..... "	"	1,013	3,435
Total .....			8,485,196



SESSIONAL PAPER No. 26a

TABLE 100.

IRON.

IRON.

## IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.		Duty.	Quantity.	Value.
				\$
Agricultural implements, N.E.S., viz:				
Cultivators and weeders . . . . .	No.	20 "	2,682	12,468
Drills, grain seed . . . . .	"	20 "	3,036	102,339
Farm, road or field rollers . . . . .	"	25 "	110	4,897
Forks, pronged . . . . .	"	25 "	7,788	6,325
Harrows . . . . .	"	20 "	4,411	82,112
Harvesters, self binding . . . . .	"	20 "	7,598	746,894
Hay tedders . . . . .	"	25 "	1,148	27,439
Hoes . . . . .	"	25 "	5,890	1,278
Horse rakes . . . . .	"	20 "	9,042	173,044
Knives, hay or straw . . . . .	"	25 "	499	220
Lawn mowers . . . . .	"	35 "	4,023	14,682
Manure spreaders . . . . .	"	20 "	229	16,603
Mowing machines . . . . .	"	20 "	9,674	331,964
Ploughs . . . . .	"	20 "	13,755	300,135
Post hole diggers . . . . .	"	25 "	869	800
Potato diggers . . . . .	"	25 "	187	1,245
Rakes, N.E.S. . . . .	"	25 "	6,620	1,278
Reapers . . . . .	"	20 "	963	48,325
Scythes . . . . .	Doz.	25 "	3,858	17,126
Sickles or reaping hooks . . . . .	"	25 "	527	1,127
Spades and shovels and spade and shovel blanks, and iron or steel cut to shape for the same . . . . .	"	35 "	7,891	33,094
Parts of agricultural implements . . . . .	\$	20 "		673,848
All other agricultural implements, N.E.S. . . . .	"	25 "		42,100
Anvils and vises . . . . .	"	30 "		53,263
Cart or wagon skeins or boxes . . . . .	Lbs.	30 "	107,413	4,335
Springs, axles, axle bars, N. E. S., and axle blanks and parts thereof of iron or steel, for railway or tramway or other vehicles . . . . .	Cwt.	35 "	25,412	69,110
Butts and hinges, N.E.S. . . . .	\$	30 "		58,059
Cast iron pipe of every description . . . . .	Cwt.	\$8 per ton	159,410	217,054
Chains, coil chains, chain links and chain shackles of iron or steel 5-16 of an inch in diameter and over . . . . .	"	5 "	54,531	162,927
Chain, malleable sprocket or link belt-ing, for binders . . . . .	\$	20 "		30,313
Chains, N.E.S. . . . .	"	30 "		88,499
Tacks, shoe . . . . .	Lbs.	35 "	74,246	5,446
Cut tacks, brad sprigs, or shoe nails, double pointed, and other tacks of iron and steel, N.O.P. . . . .	"	35 "	108,476	8,182
Engines, locomotives for railways, N.E.S. . . . .	No.	35 "	200	2,431,220
Fire engines . . . . .	"	35 "	10	8,235
Fire extinguishing machines . . . . .	"	35 "		49,596
Gasoline engines . . . . .	"	25 "	563	127,851
Steam engines and boilers . . . . .	"	25 "	1,129	466,919
Fittings, iron or steel, for iron and steel pipe . . . . .	Lbs.	30 "	5,593,047	352,699
Carried forward . . . . .				6,773,051



IRON.

TABLE 10b--Continued.

IRON.

IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
			\$
Brought forward .....			6,773,051
Forgings of iron or steel, of whatever shape or size, or in whatever stage of manufacture, N.E.S., and steel shafting, turned, compressed or polished, and hammered iron or steel bars or shapes, N.O.P. .... Lbs.	30	3,725,334	139,286
Hardware, viz : Builders', cabinet-makers', upholsterers', harness-makers', saddlers' and carriage hardware, including currycombs and horse boots, N.E.S. ....	\$ 30 "		758,741
Horse, mule and ox shoes .....	" 30 "		6,810
Locks of all kinds .....	" 30 "		195,744
Automobiles .....	" 25 "		315,475
Machines and machinery, &c. : Fanning mills .....	No. 25 "	187	2,468
Grain crushers .....	" 25 "	5	115
Windmills .....	" 25 "	555	33,914
Ore crushers and rock crushers, stamp mills, cornish and belted rolls, rock drills, air compressors, cranes, derricks and percussion coal cutters .....	\$ 25 "		65,259
Portable machines : Fodder or feed cutters .....	No. 25 "	89	2,350
Horse powers .....	" 25 "	81	5,797
Portable engines .....	" 25 "	490	485,598
Portable saw mills and planing mills .....	" 25 "	30	12,522
Threshers and separators .....	" 25 "	660	291,774
All other portable machines .....	" 25 "	862	46,278
Parts of above articles .....	\$ 25 "		169,602
Sewing machines and parts of .....	No. 30 "	14,427	336,921
Slot machines .....	" 25 "	686	12,233
Machines, type-writing .....	" 25 "	2,734	167,299
All other machinery composed wholly or in part of iron or steel, N.O.P. ....	\$ 25 "		5,191,194
Nails and spikes, composition and sheathing nails .....	Lbs. 15 "	34,864	4,254
Nails and spikes, wrought and pressed, trunk, clout, coopers, cigar box, Hungarian horseshoe and other nails, N.E.S. "	" 30 "	257,163	16,636
Nails and spikes, cut, and railway spikes ..	" 1c. per lb.	5,002,053	97,221
Nails, wire of all kinds, N.O.P. ....	" 1c. "	1,290,696	31,133
Pumps, N.E.S. ....	\$ 25 %		202,792
Sad or smoothing, hatters' or tailors' irons, plated wholly or in part or not .....	" 25 "		9,464
Safes, doors for safes and vaults .....	" 30 "		92,890
Screws, iron and steel, commonly called 'woodscrews,' N.E.S. .... Lbs.	35 "	111,999	20,199
Scales, balances, weighing beams and strength testing machines .....	\$ 30 "		114,585
Skates of all kinds and parts thereof .....	Pairs 35 "	32,926	27,191
Stoves of all kinds and parts thereof, N.E.S. "	\$ 25 "		365,997
Sheet iron or steel corrugated, galvanized ..	Cwt. 25 "	8,295	21,975
Sheet iron or steel corrugated not galvanized "	" 30 "	2,267	4,817
Carried forward .....			16,021,585



SESSIONAL PAPER No. 26a

TABLE 10*b*—Continued.

IRON.

## IRON.

## IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
Brought forward. ....			\$ 16,021,585
<b>Tubing:</b>			
Boiler tubes of wrought iron or steel, including flues and corrugated tubes for marine boilers..... Lbs.	5 "	3,933,685	375,575
Tubes of rolled steel, seamless, not joined or welded, not more than 1½ inches in diameter..... "	10 "	46,281	4,418
Tubes, seamless steel, for bicycles..... "	10 "	156,766	12,418
Tubing, wrought iron or steel, plain or galvanized, threaded and coupled or not, over 2 inches in diameter, N.E.S. "	15 "	2,266,438	495,887
Tubing, wrought iron or steel, plain or galvanized, threaded and coupled or not, 2 inches or less in diameter, N.E.S. .... "	35 "	2,667,098	115,991
Other iron or steel tubes or pipes, N.O.P. "	30 "	216,668	45,461
Ware, galvanized sheet iron or of galvanized sheet steel, manufactures of, N.O.P. \$	25 "		21,101
Ware, agate, granite or enamelled iron or steel hollow ware..... "	35 "		62,774
Ware, enamelled iron or steel ware, N.E.S., iron or steel hollow ware, plain black, tinned or coated, and nickel and aluminium kitchen or household hollow ware, N.E.S. .... "	30 "		132,702
Wire bale ties..... Bundles of 250 ties	30 "	1,658	2,262
Wire cloth or wove wire and netting of iron or steel..... Lbs.	30 "	1,194,526	56,366
Wire screens, doors and windows..... \$	30 "		14,581
Wire fencing, woven, buckthorn strip and wire fencing of iron or steel, N.E.S. .... Lbs.	15 "	683,562	19,169
Wire, single or several, covered with cotton, linen, silk, rubber or other material, &c., N.E.S. .... "	30 "	1,135,377	193,940
Wire of all kinds, N.O.P. .... "	20 "	8,170,053	202,153
Wire rope, stranded or twisted wire, clothes lines, picture or other twisted wire and wire cables, N.E.S. .... "	25 "	2,443,730	173,567
Iron or steel nuts, washers, rivets and bolts with or without threads and nut bolt and hinge blanks, and T. and strap hinges of all kinds, N.E.S. .... "	$\frac{3}{4}$ c.p. lb.		
Pen-knives, jack-knives and pocket knives of all kinds..... \$	and 25 %	3,891,056	147,719
Table cutlery, all kinds, N.O.P. .... "	30 "		186,132
All other cutlery, N.E.S. .... "	30 "		265,651
Guns, rifles, including air guns and air rifles, (not being toys) muskets, cannons, pistols, revolvers, or other firearms ... "	30 "		199,997
Bayonets, swords, fencing foils and masks... "	30 "		459,878
Needles of any material or kind, N.O.P. .... "	30 "		1,971
Carried forward .....			81,739
			19,293,037



IRON.

TABLE 10*b*—*Continued.*

IRON.

IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
			\$
Brought forward.....	.....	.....	19,293,037
Tools and implements:			
Adzes, cleavers, hatchets, wedges, sledges, hammers, crow bars, cant dogs and track tools, picks, mattocks and eyes or poles for the same.....	\$ 30	.....	54,277
Axes.....	Doz. 25 "	7,302	38,844
Saws.....	\$ 30 "	.....	189,587
Files and rasps, N.E.S. ....	" 30 "	.....	80,255
Tools, hand or machine, of all kinds, N.O.P	" 30 "	.....	875,080
Knife blades, or blanks, and forks of iron or steel, in the rough not handled, filed, ground or otherwise manufactured..	" 10 "	.....	82
Manufactures: articles or wares not specially enumerated or provided for, composed wholly or in part of iron or steel, and whether partly or wholly manufactured.	" 30 "	.....	2,243,020
Anchors.....	Cwt. Free	5,002	18,106
Iron or steel, rolled round wire rods, in the coil not over $\frac{3}{8}$ -inch in diameter, imported by wire manufacturers for use in making wire in the coil in their own factories .....	" "	846,250	1,134,149
Iron or steel masts, or parts of.....	" "	204	1,112
Rolled iron tubes not welded, or joined, under $1\frac{1}{2}$ inch in diameter, angle iron 9 and 10 gauge, not over $1\frac{1}{2}$ inch wide, iron tubing lacquered or brass covered, not over $1\frac{1}{2}$ inch diameter, all of which are to be cut to lengths for the manufacture of bedsteads, and to be used for no other purpose, and brass trimmings for bedsteads imported for the manufacture of iron or brass bedsteads.....	" "	49,100	151,017
Steel bowls for cream separators and cream separators .....	\$ "	.....	450,429
Cream separators: articles for the construction or manufacture of—when imported by manufacturers of cream separators to be used in their own factories for the manufacture of cream separators, O.C....	" "	.....	40,017
Steel rails weighing not less than 45 lbs. per lineal yard for use only in the tracks of railways which are employed in the common carrying of goods and passengers, and are operated by steam motive power only.....	Cwt. "	3,797,678	4,329,363
Steel strip and flat steel wire imported by manufacturers of buckthorn and plain strip fencing, for use in their own factories in the manufacture thereof.....	" "	7	27
Carried forward.....	.....	.....	28,898,402



TABLE 10*b*—*Concluded*.

IRON.

IRON.

IMPORTS OF IRON AND STEEL GOODS.

Fiscal Year, 1904.	Duty.	Quantity.	Value.
Brought forward .....			\$ 28,898,402
Steel wire, Bessemer soft drawn spring of Nos. 10, 12 and 13 gauge respectively, and homo steel spring wire of Nos. 11 and 12 gauge, respectively, imported by manufacturers of wire mattresses, to be used in their own factories in the manufacture of such articles.....	"	Free.	5,710 17,204
Machinery and structural iron for beet root sugar factories.....	\$	"	12,278
Flat steel wire of No. 16 gauge or thinner imported by the manufacturers of crinoline, corset wire and dress stays, for use in the manufacture of such articles in their own factories.....	Cwt.	"	2,080 14,653
Wire, crucible cast steel .....	Lbs.	"	1,518,473 74,099
Galvanized iron or steel wire Nos. 9, 12 and 13 gauge.....	Cwt.	"	298,822 638,513
Barbed fencing wire of iron and steel.....	"	"	340,396 847,019
Total .....			30,502,168

TABLE 11.

IRON.

IMPORTS OF PIG IRON, IRON AND STEEL GOODS, &c., FISCAL YEAR, 1903-1904.

Recapitulation of Tables, 7, 8, 9, 10*a* and 10*b*.

	Tons.	Value.
Pig iron .....	62,515	\$894,728
Pig iron, charcoal.....		
Scrap iron, cast.....	11,385	149,923
Scrap steel, wrought.....	21,027	298,806
Ferro-manganese, &c.....	2,975	75,554
Iron in slabs, blooms, puddled bars, &c .....	10,014	216,571
Iron and steel goods partially manufactured.....		8,485,196
Iron and steel goods more highly manufactured*....		30,502,168
Total .....		40,622,946

\*Machinery, &c., classed under iron and steel goods in Customs report.



LEAD.

LEAD.

The Canadian production of lead for 1904 shows a large increase over the previous year, being more than double the production of 1903.

The returns show a quantity of 37,531,244 lbs. which, estimated according to our custom at the average monthly market price of the refined metal in New York, represents a value of \$1,617,221. This increase is directly traceable, in a great measure, to the bounty on lead mined in Canada, offered by the Dominion Government which caused the reopening of several mines in East Kootenay.

Only two provinces contributed to the total of the production, viz., British Columbia and Ontario, but the last named province comes in only for a very small proportion.

TABLE 1.  
LEAD.  
ANNUAL PRODUCTION.

Calendar Year.	Pounds.	Price per Pound.	Value.
		cts.	
1887....	204,800	4.50	\$ 9,216
1888....	674,500	4.42	29,812
1889....	165,190	3.93	6,488
1890....	105,000	4.48	4,704
1891....	88,665	4.35	3,857
1892....	808,420	4.09	33,064
1893....	2,135,023	3.73	79,636
1894....	5,703,222	3.29	187,636
1895....	16,461,794	3.23	531,716
1896....	24,199,977	2.98	721,159
1897....	39,018,219	3.58	1,396,853
1898....	31,915,319	3.78	1,206,399
1899....	21,862,436	4.47	977,250
1900....	63,169,821	4.37	2,760,521
1901....	51,900,958	4.334	2,249,387
1902....	22,956,381	4.069	934,095
1903....	18,139,283	4.237	768,562
1904....	37,531,244	4.309	1,617,221



## SESSIONAL PAPER No. 26a

Tables 2, 3 and 4 give statistics of the lead trade in Canada.

LEAD.

TABLE 2.

LEAD.

EXPORTS

Calendar Year.	Value.
1873 .....	\$1,993
1874 .....	127
1875 .....	7,510
1876 .....	66
1877 .....	720
1878 .....	
1879 .....	230
1880 .....	
1881 .....	
1882 .....	32
1883 .....	5
1884 .....	36
1885 .....	
1886 .....	
1887 .....	724
1888 .....	18
1889 .....	
1890 .....	
1891 .....	5,000
1892 .....	2,509
1893 .....	3,099
1894 .....	144,509
1895 .....	435,071
1896 .....	462,095
1897 .....	925,144
1898 .....	885,485
1899 .....	466,950
1900 .....	1,917,690
1901 .....	1,804,687
1902 .....	457,170
1903 .....	426,466
1904 .....	559,461



LEAD.

TABLE 3.

LEAD.

IMPORTS OF LEAD.

Fiscal Year.	OLD, SCRAP AND PIG.		BARS, BLOCKS, SHEETS.		TOTAL.	
	Cwt.	Value.	Cwt.	Value.	Cwt.	Value.
1880 .....					30,298	\$124,117
1881 .....	16,236	\$ 56,919	18,222	\$70,744	34,458	127,663
1882.....	36,655	120,870	10,540	35,728	47,195	156,598
1883.....	48,780	148,759	8,591	28,785	57,371	177,544
1884.....	39,409	103,413	9,704	28,458	49,113	131,871
1885 .....	36,106	87,038	9,362	24,396	45,468	111,434
1886.....	39,945	110,947	9,793	28,948	49,738	139,895
1887 .....	61,160	173,477	14,153	41,746	75,313	215,223
1888.....	68,678	196,845	14,957	45,900	83,635	242,745
1889 .....	74,223	213,132	14,173	43,482	88,396	256,614
1890.....	101,197	283,096	19,083	59,484	120,280	342,580
1891.. ..	86,382	243,033	15,646	48,220	102,028	291,253
1892.....	97,375	254,384	11,299	32,368	108,674	286,752
1893.....	94,485	215,521	12,403	32,286	106,888	247,807
1894.....	70,223	149,440	8,486	20,451	78,709	169,891
1895.....	67,261	139,290	6,739	16,315	74,000	155,605
1896.....	72,433	173,162	8,575	23,169	81,008	196,331
1897.....	65,279	158,381	10,516	29,175	75,795	187,556
	OLD, SCRAP, PIG AND BLOCK.*		BARS AND SHEETS.†		TOTAL.	
1898.. ..	88,420	\$260,779	22,214	\$39,041	110,634	\$299,820
1899.....	114,659	283,432	44,796	39,833	159,455	323,265
1900.. ..	62,361	207,819	15,493	53,506	77,854	251,325
1901.....	(a) 85,321	97,011	16,295	78,316	101,616	175,327
1902.....	(a) 122,279	104,672	18,596	49,261	140,875	153,933
1903.....	(a) 98,530	67,821	11,535	35,398	110,065	103,219
1894.....	(a) 94,602	121,165	14,102	39,644	108,704	160,809

\* Duty 15 p. c.

† Duty 25 p. c.

(a) Includes Canadian lead ore sent to the United States for refining, imported at price of refining only.



TABLE 4.

LEAD.

LEAD.

IMPORTS OF LEAD MANUFACTURES.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880. ....	\$15,400	1892. ....	\$ 22,636
1881. ....	22,629	1893. ....	33,783
1882. ....	17,282	1894. ....	29,361
1883. ....	25,556	1895. ....	38,015
1884. ....	31,361	1896. ....	50,722
1885. ....	36,340	1897. ....	60,735
1886. ....	33,078	1898. ....	63,179
1887. ....	19,140	1899. ....	91,497
1888. ....	18,816	1900. ....	104,736
1889. ....	16,315	1901. ....	107,260
1890. ....	25,600	1902. ....	120,020
1891. ....	23,893	1903. ....	134,151
		Duty.	
1904 {	Lead Tea. ....	Free.	\$61,260
	" Pipe. ....	35 p. c.	5,968
	" Shot and bullets. ....	35 "	
	" Manufactures, N.E.S. ....	30 "	61,856
Total. ....			\$129,093

Tables 5 and 6 give figures of imports of litharge, and white lead. In this connection we note that the Carter White Lead Co. who have a large plant in Chicago, U.S., are now establishing a factory in Montreal, where they will use pig lead from the Trail smelter.

TABLE 5.

LEAD.

IMPORTS OF LITHARGE.

Fiscal Year.	Cwt.	Value.	Fiscal Year.	Cwt.	Value.
1880. ....	3,041	\$14,334	1893. ....	7,685	\$24,401
1881. ....	6,126	22,129	1894. ....	38,547	28,685
1882. ....	4,900	16,651	1895. ....	11,955	32,953
1883. ....	1,532	6,173	1896. ....	10,710	32,817
1884. ....	5,235	18,132	1897. ....	12,028	34,538
1885. ....	4,990	16,156	1898. ....	11,446	32,904
1886. ....	4,928	16,003	1899. ....	9,530	32,518
1887. ....	6,397	21,865	1900. ....	9,139	29,176
1888. ....	7,010	23,808	1901. ....	11,132	51,944
1889. ....	8,089	31,082	1902. ....	13,002	47,021
1890. ....	9,453	31,401	1903. ....	13,921	47,761
1891. ....	7,979	27,613	1904. .... Duty free	9,894	32,633
1892. ....	10,384	34,343			



LEAD.

TABLE 6.

LEAD.

IMPORTS OF DRY WHITE AND RED LEAD AND ORANGE MINERAL.

Fiscal Year.	Pounds.	Value.
		\$
1885.....	5,404,753	198,913
1886.....	6,703,077	213,258
1887.....	6,998,820	233,725
1888.....	6,361,334	216,654
1889.....	7,066,465	267,236

IMPORTS OF DRY WHITE AND RED LEAD, ORANGE MINERAL AND ZINC WHITE.

Fiscal Year.	Pounds.	Value.
		\$
1890.....	10,859,672	381,959
1891.....	8,560,615	337,407
1892.....	10,288,766	351,686
1893.....	10,865,183	364,680
1894.....	10,958,170	353,053
1895.....	8,780,052	282,353
1896.....	11,711,496	367,569
1897.....	10,310,463	347,539
1898.....	12,682,808	448,659
1899.....	14,507,945	514,842
1900.....	14,679,920	634,492
1901.....	10,241,601	461,368
1902.....	15,584,164	603,582
1903.....	19,208,786	758,371
1904.....Duty, 5 p.c.	16,925,585	662,098



## SESSIONAL PAPER No. 26a

As will be seen by consulting table 7 or 8, British Columbia is LEAD. responsible for very nearly the total Canadian lead production. The figures for 1904 are more than double those of 1903. This is mainly due to the reopening of the St. Eugene mine in the Fort Steele division of the East Kootenay district, whose operation was materially assisted by the bounty offered by the Dominion Government.

TABLE 7.

LEAD.

BRITISH COLUMBIA : PRODUCTION.

Calendar Year.	Pounds.	Price per Pound.	Value.
		cts.	
1887.....	204,800	4 50	\$ 9,216
1888.....	674,500	4 42	29,813
1889.....	165,100	3 93	6,488
1890.....	Nil.		
1891.....			
1892.....	808,420	4 09	33,064
1893.....	2,131,092	3 73	79,490
1894.....	5,703,222	3 29	187,636
1895.....	16,461,794	3 23	531,716
1896.....	24,199,977	2 98	721,159
1897.....	38,841,135	3 58	1,390,513
1898.....	31,693,559	3 78	1,198,017
1899.....	21,862,436	4 47	977,250
1900.....	63,158,621	4 37	2,760,031
1901.....	51,582,906	4 334	2,235,603
1902.....	22,536,381	4 069	917,005
1903.....	18,089,283	4 237	766,443
1904.....	36,646,244	4 309	1,579,086

TABLE 8.

LEAD.

BRITISH COLUMBIA : PRODUCTION BY DISTRICTS.

	1901.	1902.	1903.	1904.
	Pounds.	Pounds.	Pounds.	Pounds.
East Kootenay—				
Fort Steele .....	29,129,128	3,017,756	717,479	21,071,236
Other districts.....	775,016	204,652	951,296	401,022
West Kootenay—				
Ainsworth.....	3,788,412	3,083,039	4,299,727	3,091,648
Nelson .....	2,470,350	1,680,948	1,072,542	976,570
Slocan.....	15,025,759	13,651,144	9,880,469	10,611,227
Trail Creek.....				
Other districts .....	391,844	885,734	1,144,239	485,520
Yale.....	2,397	13,108	23,531	9,021
	51,582,906	22,536,381	18,089,283	36,646,244



LEAD.

In Ontario the only output of lead ore was from the Hollandia mine, in the county of Hastings. This is worked by the Ontario Mining and Smelting Company who operate a smelter.

NICKEL.

NICKEL.

Both in value and quantity, the nickel production shows decreases as compared with 1903. In quantity there was a falling off of 1,957,627 lbs., and in value of \$783,051. This is estimating the nickel contents of the matte at the final average market price in New York, which price for 1904 was 40 cents a pound.

The production of ore, matte, etc, in 1904 was as follows :

Ore mined.....	203,388 tons.
Ore smelted .....	118,470 "
Matte made.....	8,924 "
Matte shipped.....	10,154 "
Matte in stock at end of year ..	17 "
Copper contents of matte shipped.....	2,455 "
Nickel .....	5,274 "
Spot value of matte shipped.....	\$2,193,198.

All of the nickeliferous matte is exported. According to Customs returns the exports of nickel in matte were as follows in 1904 :—

To Great Britain .....	2,028,908 lb.
To United States .....	9,204,961 "
Total.....	11,233,869 "

Canada is now the world's largest producer of nickel. The whole Canadian production is derived from the deposits of the Sudbury region, Ont., which occurs in eruptive rocks which Dr. Barlow classes as gabbros or norite and diorite associated with rocks of Huronian age and igneous rocks which are of more recent origin. These have been very exhaustively dealt with by Dr. A. E. Barlow in his report entitled 'On the origin and geological relations and composition of the nickel and copper deposits of the Sudbury Mining District,' which was published this year by the Geological Survey. This report is accompanied by five maps.

The chief operators of the Sudbury district are:—The Canadian Copper Company, Copper Cliff, Ont.; The Mond Nickel Company, Victoria Mines, Nipissing, Ont.; The Lake Superior Power Co., Sault Ste Marie, Ont. There are other nickeliferous deposits in Canada, but they are not being exploited. Ores bearing this metal occur in the Timiskaming region in rocks which are probably an extension of the Huronian rocks in which the Sudbury deposits are found. Nickeliferous pyrrhotite deposits have also been known for a long time in intrusive rocks found at St. Stephen, New Brunswick, as well as at



SESSIONAL PAPER No. 26a

several places in the Eastern Townships of the province of Quebec. NICKEL. Dr. Barlow in the report mentioned above gives a short résumé of all known nickel occurrences in Canada.

TABLE 1.  
NICKEL.  
ANNUAL PRODUCTION.

Calendar Year.	Pounds of Nickel in Matte.	Final Average Market Price per lb. at New York.	Value.
1889.....	*830,477	60c.	\$ 498,286
1890.....	1,435,742	65c.	933,232
1891.....	4,035,347	60c.	2,421,208
1892.....	2,413,717	58c.	1,399,956
1893.....	3,982,982	52c.	2,071,151
1894.....	4,907,430	38½c.	1,870,958
1895.....	3,888,525	35c.	1,360,984
1896.....	3,397,113	35c.	1,188,990
1897.....	3,997,647	35c.	1,399,176
1898.....	5,517,690	33c.	1,820,838
1899.....	5,744,000	36c.	2,067,840
1900.....	7,080,227	47c.	3,327,707
1901.....	9,189,047	50c.	4,594,523
1902.....	10,693,410	47c.	5,025,903
1903.....	12,505,510	40c.	5,002,204
1904.....	10,547,883	40c.	4,219,153

\* Calculated from shipments made by rail.

TABLE 2.  
NICKEL.  
EXPORTS.\*

Calendar Year.	Value.	Calendar Year.	Value.
1890.....	\$ 89,568	1898.....	\$ 1,019,363
1891.....	667,280	1899.....	939,915
1892.....	293,149	1900.....	1,031,030
1893.....	629,692	1901.....	751,080
1894.....	559,356	1902.....	1,007,211
1895.....	521,783	1903.....	1,116,099
1896.....	658,213	1904.....	1,091,349
1897.....	723,130		

\*Practically all the nickel-bearing ore and matte produced in Canada is exported, the apparent discrepancy between Tables Nos. 1 and 2 being due to the different basis of valuation adopted in the two instances. Table 1 represents the total final values of the nickel produced in Canada, for the years represented. In Table 2 the worth of the product shipped is entered at its spot value to the operators, and depends upon the particular stage to which they happen to carry the process of extraction at the time, e.g., whether the shipments made are raw ore, low grade matte or high grade matte, &c.



## NICKEL.

TABLE 3.

## NICKEL.

## IMPORTS.

Calendar Year.		Value.
1890 .....		\$ 3,154
1891 .....		3,889
1892 .....		3,208
1893 .....		2,905
1894 .....		3,528
1895 .....		4,267
1896 .....		4,787
1897 .....		4,737
1898 .....		5,882
1899 .....		9,449
1900 .....		6,988
1901 .....		12,029
1902 .....		15,448
1903 .....		26,177
		Duty.
1904	( Nickel anodes.....	10 p. c. 13,360
	( Nickel.....	Free. 1,322
		\$ 14,682

\* Classified under the general heading of minerals in the Trade and Navigation Report.

## ZINC.

## ZINC.

Zinc mining has not yet become an established industry in Canada.

Although some shipments of ore have been made from several mines in British Columbia, no statistics of production are yet available for this province.

The production given in the table represents ore taken out in developing a zinc property in the township of Olden, county of Frontenac, Ontario. The total production of ore during the year was 533 gross tons, valued at \$3,700. The owners of this property, James Richardson and Sons of Kingston, have decided to put in a milling plant as it has been found impossible to make it a paying proposition without treating the ore on the ground.



## SESSIONAL PAPER No. 26a

TABLE 1.  
ZINC.  
ANNUAL PRODUCTION OF ZINC.

ZINC.

Calendar Year.	Pounds.	Value.
1898.....	788,000	\$ 36,011
1899.....	814,000	46,805
1900.....	212,000	9,342
1901.....		
1902.....	142,200	6,882
1903.....	900,000	48,600
1904.....	477,568	24,356

TABLE 2.  
ZINC.  
IMPORTS OF ZINC IN BLOCKS, PIGS AND SHEETS.

Fiscal Year.	Cwt.	Value.	Fiscal Year.	Cwt.	Value.
1880.....	13,805	\$67,881	1893.....	26,446	124,360
1881.....	20,920	94,015	1894.....	20,774	90,680
1882.....	15,021	76,631	1895.....	15,061	63,373
1883.....	22,765	94,799	1896.....	20,223	80,784
1884.....	18,945	77,373	1897.....	11,946	57,754
1885.....	20,954	70,598	1898.....	35,148	112,785
1886.....	23,146	85,599	1899.....	18,785	107,477
1887.....	26,142	98,557	1900.....	28,748	156,167
1888.....	16,407	65,827	1901.....	20,527	103,457
1889.....	19,782	83,935	1902.....	34,871	141,560
1890.....	18,236	92,530	1903.....	26,646	142,827
1891.....	17,984	105,023	1904Duty free	25,553	138,057
1892.....	21,881	\$127,302			

TABLE 3.  
ZINC.  
IMPORTS OF SPELTER.

Fiscal Year.	Cwt.	Value.	Fiscal Year.	Cwt.	Value.
1880.....	1,073	\$ 5,310	1893.....	10,721	\$49,822
1881.....	2,904	12,276	1894.....	8,423	35,615
1882.....	1,654	7,779	1895.....	9,249	30,245
1883.....	1,274	5,196	1896.....	10,897	40,548
1884.....	2,239	10,417	1897.....	8,342	32,826
1885.....	3,325	10,875	1898.....	2,794	13,561
1886.....	5,432	18,238	1899.....	5,450	29,687
1887.....	6,908	25,007	1900.....	5,836	29,416
1888.....	7,772	29,762	1901.....	14,621	58,283
1889.....	8,750	37,403	1902.....	18,356	80,757
1890.....	14,570	71,122	1903.....	23,159	110,817
1891.....	6,249	31,459	1904Duty free	33,952	164,751
1892.....	13,909	62,550			

\*Spelter in blocks and pigs.



ZINC.

TABLE 4.

ZINC.

IMPORTS OF ZINC, MANUFACTURES OF.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880.....	\$ 8,327	1892.....	\$ 7,563
1881.....	20,178	1893.....	7,464
1882.....	15,526	1894.....	6,193
1883.....	22,599	1895.....	5,581
1884.....	11,952	1896.....	6,290
1885.....	9,459	1897.....	5,145
1886.....	7,345	1898.....	10,503
1887.....	6,561	1899.....	14,661
1888.....	7,402	1900.....	11,475
1889.....	7,233	1901.....	6,882
1890.....	6,472	1902.....	6,683
1891.....	7,178	1903.....	9,754
		Duty.	
1904 { Zinc seamless drawn tubing.....		Free.	
" manufactures of, N.O.P.....		25 %	\$ 12,682
Total.....			12,682

The following remarks on the zinc ores of British Columbia are taken from the Report of the Minister of Mines for the province for 1904.

“ Zinc ores have been receiving a great deal of attention during this past year, more particularly those of the Slocan district, but, with the exception of the ore from the Ivanhoe mine, Sandon, it could not be learned that any important amount of ore had been sold before the close of the year. In the Slocan district, zinc blende occurs with the galena ores, sometimes in considerable quantity, and usually associated with iron carbonates. Most of the concentrating mills have now been equipped so as to separate out a “ zinc concentrate ” from the jigs and tables. These concentrates will run from 38 to 48 per cent zinc (as zinc blende) but will carry as impurities, considered from the standpoint of a zinc ore, from 2 to 5 per cent of lead, as galena, from 5 to 15 per cent of iron, as pyrite and carbonate, and from 20 to 45 ounces of silver to the ton, with the balance gangue matter, usually highly silicious.

“ Most of the zinc smelting works which are prepared to buy zinc ores are now using the Belgian furnace, in which the ore is mixed with coal or other reducing agent, placed in a clay retort, the reduced zinc being distilled off and caught in a condenser. Iron and lead are highly



## SESSIONAL PAPER No. 26a

objectionable in this process inasmuch as they flux with and destroy ZINC. the retorts, adding greatly to the cost of the process. For this reason crude Slocan concentrates have not found a ready market and to remove these objectionable impurities two "zinc enrichment" plants are under construction, in addition to the Payne mine magnetic separator. It is believed that these impurities can be so removed, to such an extent at least, as to render them non-injurious, but the question of the silver still remains to be solved, for, as far as could be observed, it is directly included in, and a part of, the zinc blende, and cannot be separated, save by smelting or some other form of disintegration of that mineral.

"While this silver cannot be considered as detrimental to the ore as a zinc ore, it is very difficult to separate and save the silver, and but a partial recovery can be made at the best; consequently the price offered by ore buyers seems very low for the silver contents. For this reason it has so far been found advisable by all the producers to throw as much zinc into the lead concentrates as the lead smelter will accept without a penalty, in which case the producer gets no pay for his zinc but gets a price for its silver contents which more than recoups him for his loss of zinc. These conditions apply to zinc smelting as it is usually carried on. There are, however, two or three newer processes not very widely known, which are especially adapted to such ores, but operators of these concerns are naturally only prepared to give enough for the ore to outbid the regular zinc smelter. An electric process is being developed in Vancouver which has considerable promise and which can be utilized in small units, and this may help to solve the problem by the local treatment of the concentrates.

"The ore from the "Lucky Jim" mine of the Slocan is a zinc ore, low in silver, with iron and lead as occasional impurities. About 2,000 tons of this ore were shipped to Kaslo about the end of 1904, but the sales had not been completed by the close of the year.

"There are zinc ore properties on Quatsino Sound and also near Vancouver, but so far no shipments have been made and little development has been done."



MISCELLA-  
NEOUS.

MISCELLANEOUS.

ALUMINIUM.

Aluminum.       The Northern Aluminium Company have extensive works at Shawe-  
negan Falls, Que., where they manufacture aluminium from ores  
imported from France and Germany. They have also a well equipped  
wire mill where the metal is made into aluminium wire and cables  
which are used extensively now in transmission of electricity. No  
Canadian raw material is used, but it is interesting to mention the  
industry inasmuch that it may stimulate search and prospecting for  
ores of alumina. The Northern Aluminium Company use bauxite  
imported from France and Germany.

ANTIMONY.

Antimony.       The last return of production of antimony which was received in  
this office was for the year 1898. Since then, however, the reports of  
the Department of Customs show an annual export of antimony, of  
which we have no record of production. The greater part of the Canad-  
ian production of antimony has been derived from the Rawdon mine,  
Hants county, Nova Scotia, which is owned by the Dominion Antimony  
Company of Halifax. This deposit is a vein some six feet wide, of  
which a width of some twenty inches contains stibnite, kermesite,  
galena and other minerals.

Other comparatively important deposits of antimony are known to  
occur in South Ham, Wolfe county, Que., and at Prince William,  
York county, N.B.

TABLE 1.

MISCELLANEOUS.

METALLIC.

ANNUAL PRODUCTION OF ANTIMONY ORE.

Calendar Year.	Tons.	Value.
1886 .....	665	\$31,490
1887 .....	584	10,860
1888 . . . . .	345	3,696
1889 .....	55	1,100
1890 .....	26½	625
1891 .....	10	60
1892 to 1897.....	Nil.	Nil.
1898 .....	1,344	20,000



SESSIONAL PAPER No. 26a

TABLE 2.  
MISCELLANEOUS.  
METALLIC.  
EXPORTS OF ANTIMONY ORES.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
1880.....	40	\$ 1,948	1890. ....	38	\$ 1,000
1881.....	34	3,308	1891.....	3½	60
1882.....	323	11,673	1892 to 1897..	Nil.	Nil.
1883.....	165	4,200	1898.....	1,232	15,295
1884.....	483	17,875	1899.....	6½	190
1885.....	758	36,250	1900.....	210	3,441
1886.....	665	31,490	1901.....	10	1,643
1887.....	229	9,720	1902.....	90	13,658
1888.....	352½	6,894	1903.....	33	4,332
1889.....	30	695	1904.....	160	7,237

Antimony.

TABLE 3.  
MISCELLANEOUS.  
METALLIC.  
IMPORTS OF ANTIMONY.

Calendar Year.	Pounds.	Value.	Fiscal Year.	Pounds.	Value.
1880.....	42,247	\$ 5,903	1892... ..	180,308	17,680
1881.....	.....	7,060	1893.....	181,823	14,771
1882.....	183,597	15,044	1894.....	139,571	12,249
1883.....	105,346	10,355	1895.....	79,707	6,131
1884.....	445,600	15,564	1896.....	163,209	9,557
1885.....	82,012	8,182	1897.....	134,661	8,031
1886.....	89,787	6,951	1898.....	156,451	12,350
1887.....	87,827	7,122	1899.....	289,066	16,851
1888.....	120,125	12,242	1900.....	186,997	20,001
1889.....	119,034	11,206	1901.....	350,737	24,714
1890.....	117,066	17,439	1902.....	504,822	39,276
1891.....	114,084	17,483	1903.....	868,146	65,434
1904 { Antimony, or regulus of, not ground, pulverized or otherwise manufactured. Antimony salts.....			Duty.		
			Free.	301,882	18,228
Total.....			"	117,061	8,884
				418,943	27,112



MISCELLA-  
NEOUS,

COBALT.

Cobalt.

According to the figures published by the Ontario Bureau of Mines' the production of cobalt in 1904 was 29 tons valued at \$36,620. This was derived from two sources (1) the nickeliferous ores of the Sudbury district, and (2) the silver-cobalt-arsenides lately discovered in Coleman township. As regards the first of these sources, the production is likely to cease for the present, on account of the new processes introduced in the remodelled smelters of the Canadian Copper Company and the Mond Company in which cobalt is not recovered. But as the Ontario report remarks: "The extinction of this source of supply of cobalt, however, by no means implies the disappearance of cobalt from the list of minerals produced in Ontario. Indeed the new resources of this metal now being exploited in Coleman township are of much greater extent and value as a source of cobalt, than the pyrrhotites of Sudbury, in which it is present in small percentages only. The ores of Coleman are no doubt the richest ores of cobalt now being mined anywhere, containing as they do up to 18 per cent of the metal."

MERCURY.

Mercury.

There has been no production of mercury reported since 1897. The small production reported in 1895-1896 and 1897 was derived from the deposits situated at the western end of Kamloops Lake, British Columbia. These deposits consist of quartz veins, containing pockets of cinnabar. These veins are in a zone of decomposed feldspar in a wavy baser country rock of Tertiary age.

TABLE 4.

MISCELLANEOUS.

METALLIC.

PRODUCTION OF MERCURY.

Calendar Year.	Flasks (76½ lb.)	Price per flask.	Value.
1895.....	71	\$ 33 00	\$ 2,343
1896.....	58	33 44	1,940
1897.....	9	36 00	324



TABLE 5.  
MISCELLANEOUS.  
METALLIC.  
IMPORTS OF MERCURY.

MISCELLA  
NEOUS.

Mercury.

Fiscal Year.	Pounds.	Value.
1882. ....	2,443	\$ 965
1883. ....	7,410	2,991
1884. ....	5,848	2,441
1885. ....	14,490	4,781
1886. ....	13,316	7,142
1887. ....	18,409	10,618
1888. ....	27,951	14,943
1889. ....	22,931	11,844
1890. ....	15,912	7,677
1891. ....	29,775	20,223
1892. ....	30,936	15,038
1893. ....	50,711	22,998
1894. ....	36,914	14,483
1895. ....	63,732	25,703
1896. ....	77,869	32,343
1897. ....	76,058	33,534
1898. ....	59,759	36,425
1899. ....	103,017	51,695
1900. ....	85,342	51,987
1901. ....	140,610	94,564
1902. ....	97,283	56,615
1903. ....	164,968	91,625
1904. .... Duty free	151,107	80,658

PLATINUM.

In the report on the nickel and copper deposits by Dr. A. E. Barlow it is estimated that the ores of the Sudbury district contain 1.25 oz. of the platinum group metals per ton of nickel contents. On this assumption the value of the platinum contents of the ore extracted from the deposits up to 1904 would be over \$800,000.

The report of the Ontario Bureau of Mines for 1904 gives the following :--

“The fact that platinum has been recovered from Sudbury ores as part of their commercial treatment has only recently been made public, and the successful extraction of quantities so minute is a tribute to the perfection at which modern metallurgical processes have arrived..... The yield of this rare metal for 1904 is returned at 530 ounces, which at \$19.50 had a value of \$10,452. In 1902 and 1903 the quantities

\* See report on the origin, geological relations and composition of the nickel and copper deposits of the Sudbury mining districts by Barlow. Annual Report Geological Survey of Canada. Vol. XIV, Part H.



MISCELLA-  
NEOUS.  
Platinum.

obtained were considerably larger, being for the former year, 2,375 ounces and for the latter 1710 ounces, of the value at the above price per ounce, of \$46,312 and \$33,345 respectively.....

The above quantities (for 1902-1903 and 1904) were recovered, not only from the mattes treated during the respective years, but also from the residues or accumulations of several years, so that no data exist for estimating the tonnage of the ore from which they were taken, or how much was obtained from the matte in any one year."

TABLE 6.  
MISCELLANEOUS.  
METALLIC.  
ANNUAL PRODUCTION OF PLATINUM.

Calendar Year.	Value.	Calendar Year.	Value.
1887.....	\$ 5,600	1896.....	750
1888.. . . .	6,000	1897.....	1,600
1889.....	3,500	1898.....	1,500
1890.....	4,500	1899.. . . .	825
1891.....	10,000	1900.. . . .	Nil.
1892.....	3,500	1901.....	457
1893. . . . .	1,800	1902.....	46,502
1894. . . . .	950	1903.. . . .	33,345
1895.....	\$3,800	1904. . . . .	10,872

TABLE 7.  
MISCELLANEOUS.  
METALLIC.  
IMPORTS OF PLATINUM.

Fiscal Year.	Value.	Fiscal Year.	Value.
1883.....	\$ 113	1894.. . . .	\$7,151
1884.....	576	1895.. . . .	3,937
1885.....	792	1896.....	6,185
1886.....	1,154	1897.. . . .	9,031
1887.....	1,422	1898.....	9,781
1888.....	13,475	1899.. . . .	9,671
1889.....	3,167	1900.....	57,910
1890.....	5,215	1901.....	20,263
1891.....	4,055	1902.....	19,357
1892.....	1,952	1903.....	21,251
1893.....	14,082	1904*.....	28,112

\* Platinum wire and platinum in bars, strips, sheets or plates, platinum retorts, pans, condensers, tubing and pipe, imported by manufacturers of sulphuric acid for use in their works. Duty free.



## SESSIONAL PAPER No. 26a

In the above table, the production of the years previous to 1902, has been obtained from placer workings of the Similkameen district of British Columbia. The 1902-3-4 production has been derived, to a large extent, from the Sudbury ores as above mentioned. A small quantity also comes from British Columbia.

## PALLADIUM.

It has been known for a long time that palladium was present in the nickel ore of the Sudbury district, but no definite information could be obtained as to whether the metals of the platinum group were saved in the treatment which the ores and mattes underwent. As far back as 1889, it was discovered that sperrylite, the arsenide of platinum, which is present in the Sudbury ores, contained traces of palladium. But the occurrence was noted as being only of mineralogical interest. Of late years, however, the sources of platinum have not been able to supply the demand and palladium is being considered as a possible substitute on account of its malleability and high melting point (Palladium 1500°C., Platinum 1750°C.)

The metal palladium is now being recovered from the Sudbury ores and according to figures received by the Ontario Bureau of Mines the production for the last three years has been as follows:

	Ounces	Value
1902.....	4,411....	86,014
1903.....	3,177.....	61,952
1904.....	952....	18,564

The high figures for 1902 and 1903 are perhaps due to working over some accumulation of old residue from matte treated in previous years.

## TIN.

No deposits of tin, of an economic nature, have yet been discovered in Canada, although reports that tin ores have been discovered in large quantities in this country are quite frequent. We give in the table below, figures relating to the Canadian tin trade.



MISCELLA-  
NEOUS.

TABLE 8.

MISCELLANEOUS.

METALLIC.

Tin.

IMPORTS OF TIN AND TINWARE.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880.....	\$ 281,880	1892.....	\$1,594,205
1881.....	413,924	1893.....	1,242,994
1882.....	790,285	1894.....	1,310,389
1883.....	1,274,150	1895.....	973,397
1884.....	1,018,493	1896.....	1,237,684
1885.....	1,060,883	1897.....	1,274,108
1886.....	1,117,368	1898.....	1,550,851
1887.....	1,187,312	1899.....	1,372,813
1888.....	1,164,273	1900.....	2,418,455
1889.....	1,243,794	1901.....	2,339,109
1890.....	1,289,756	1902.....	2,293,958
1891.....	1,206,918	1903.....	2,712,186
		Duty.	
1904	{ Tin crystals.....	Free.	\$ 2,168
	{ Tin in blocks, pigs and bars.....	"	720,213
	{ Tin plates and sheets.....	"	1,461,811
	{ Tin foil.....	"	51,890
	{ Tin strip waste.....	"	2,497
	Tin and manufactures of:—		
	{ Tin plate in sheets, decorated.....	25 %	...
	{ Tinware, plain, japanned, or lithographed and		
	{ all manufactures of tin, N.E.S.....	25 %	150,978
	Total . . . . .		\$2,389,557

ABRASIVE MATERIALS.

The mineral substances mined under this head in Canada result from the working of the several grindstone quarries of Nova Scotia and New Brunswick and of the products of the corundum mines of Eastern Ontario. In 1904 the total value of all classes of products resulting from these activities aggregated—spot values—\$152,327.



SESSIONAL PAPER No. 26a

*Grindstone.*—A production of 4,649 tons valued at \$42,782, was obtained in 1904, which is somewhat less than that for 1903. There has been comparatively little variation in the output for the past ten years.

*Corundum.*—The shipments of grain corundum in 1904 reached a total of 993 tons valued at \$109,545 or 5½ cents per pound. The output of the corundum mills, however, was much greater than the sales, being about 1,554 tons. The difference was held in stock at the close of the year,

Statistics of production since 1900 are as follows :—

	Quantity.	Value.
1900 grain corundum.....	3 tons.	\$ 300
1901 " .....	444 "	53,115
1902 " .....	768 "	84,465
1903 " and corundum ore.....	970 "	80,180
1904 " .....	993 "	109,545

The Canada Corundum Company operated the Craig mine in the township of Raglan, Renfrew county, during the whole year, employing about 170 men. They have a large, well equipped mill, operated by both steam and waterpower for concentrating the ore and grading the grain corundum. The mill was operated for about ten months the other two months being spent on construction work. The output of this company for the past three years has been as follows :

	1901.	1902.	1903.	1904.
Corundum-bearing rock treated.....	4,134 tons.	7,996 tons.	8,877 tons.	26,822 tons.
Grain corundum, graded.	868,590 lbs	1,611,100 lbs	1,678,833 lbs	3,159,732 lbs
Grain corundum sold in Canada.....	171,537 lbs	211,887 lbs	169,011 lbs	232,387 lbs
Grain corundum exported to England.....	20,331 "	176,342 "	1,236,695 "	121,944 "
Grain corundum exported to United States.....	576,402 "	784,947 "		1,129,601 "
Grain corundum exported to Europe.....	5,320 "	362,554 "		353,358 "
Total sales.....	773,590 "	1,535,730 "	1,405,706 "	1,837,290 "



5-6 EDWARD VII., A. 1906

ABRASIVE  
MATERIALS.TABLE 1.  
ABRASIVE MATERIALS.  
ANNUAL PRODUCTION OF GRINDSTONES.

CALENDAR YEAR.	NOVA SCOTIA.		NEW BRUNSWICK.		TOTAL.		AVERAGE PER VALUE PER TON.
	Tons.	Value.	Tons.	Value.	Tons.	Value.	
1886.....	1,765	\$24,050	2,255	\$22,495	4,020	\$46,545	\$11 58
1887.....	1,710	25,020	3,582	38,988	5,292	64,008	12 10
1888.....	1,971	20,400	3,793	30,729	5,764	51,129	8 87
1889.....	712	7,128	2,692	23,735	3,404	30,863	9 07
1890.....	850	8,536	4,034	33,804	4,884	42,340	8 67
1891.....	1,980	19,800	2,499	22,787	4,479	42,587	9 51
1892.....	2,462	27,610	2,821	23,577	5,283	51,187	9 69
1893.....	2,112	21,000	2,488	17,379	4,600	38,379	8 34
1894.....	2,128	16,000	1,629	16,717	3,757	32,717	8 71
1895.....	1,400	14,000	2,075	17,932	3,475	31,932	9 19
1896.....	1,450	14,500	2,263	18,810	3,713	33,310	8 97
1897.....	1,407	17,500	3,165	24,840	4,572	42,340	9 26
1898.....	1,422	12,350	3,513	32,425	4,935	44,775	9 07
1899.....	1,378	10,300	3,133	32,965	4,511	43,265	9 59
1900.....	1,411	12,600	4,128	40,850	5,539	53,450	9 65
1901.....	358	3,200	4,223	42,490	4,581	45,690	9 97
1902.....	1,074	8,118	3,559	36,000	4,633	44,118	9 52
1903.....	1,337	9,562	4,201	38,740	5,538	48,302	8 72
1904.....	1,029	7,332	3,620	35,450	4,649	42,782	9 20

TABLE 2.  
ABRASIVE MATERIALS.  
EXPORTS OF GRINDSTONES.

Calendar Year.	Value.
1884.....	\$28,186
1885.....	22,606
1886.....	24,185
1887.....	28,769
1888.....	28,176
1889.....	29,982
1890.....	18,564
1891.....	28,433
1892.....	23,567
1893.....	21,672
1894.....	12,579
1895.....	16,723
1896.....	19,139
1897.....	18,807
1898*	25,588
1899*	23,288
1900*	42,128
1901*	29,130
1902*	24,489
1903*	27,659
1904*	35,612

\* Including stone for the manufacture of grindstones.



TABLE 3.  
ABRASIVE MATERIALS.  
IMPORTS OF GRINDSTONES.

ABRASIVE  
MATERIALS.

Fiscal Year.	Duty.	Tons.	Value.
1880.....	.....	1,044	\$11,714
1881.....	.....	1,359	16,895
1882.....	.....	2,098	30,654
1883.....	.....	2,108	31,456
1884.....	.....	2,074	30,471
1885.....	.....	1,148	16,065
1886.....	.....	964	12,803
1887.....	.....	1,309	14,815
1888.....	.....	1,721	18,263
1889.....	.....	2,116	25,564
1890.....	.....	1,567	20,569
1891.....	.....	1,381	16,991
1892.....	.....	1,484	19,761
1893.....	.....	1,682	20,987
1894.....	.....	1,918	24,426
1895.....	.....	1,770	22,834
1896.....	.....	1,862	26,561
1897.....	.....	1,521	25,547
1898.....	.....	.....	22,217
1899.....	.....	.....	27,476
1900.....	.....	.....	34,382
1901.....	.....	.....	39,068
1902.....	.....	.....	40,838
1903.....	.....	.....	53,388
1904 {	Grindstones not mounted and not less than 36 inches in diameter. ....	15 p.c. ....	8,144
	Grindstones N.E.S. ....	25 p.c. ....	7,895
			46,039

TABLE 4.  
ABRASIVE MATERIALS.  
IMPORTS OF BURRSTONES.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880.....	\$12,049	1893.....	\$ 3,552
1881.....	6,337	1894.....	3,029
1882.....	15,143	1895.....	2,172
1883.....	13,242	1896.....	2,049
1884.....	5,365	1897.....	1,827
1885.....	4,517	1898.....	1,813
1886.....	4,062	1899.....	1,759
1887.....	3,545	1900.....	1,546
1888.....	4,753	1901.....	5,762
1889.....	5,465	1902.....	2,559
1890.....	2,506	1903.....	586
1891.....	2,089	1904*.....	35
1892.....	1,464		

\* Burrstones in blocks, rough or unmanufactured, not bound up or prepared for binding into mill-stones. Duty free.



ABRASIVE  
MATERIALS.

TABLE 5.  
ABRASIVE MATERIALS.  
IMPORTS OF EMERY.

Fiscal Year.	Emery. <i>a.</i>	Mfrs. of Emery. <i>b.</i>
1885.....	\$ 5,066	\$ 4,920
1886.....	11,877	5,832
1887.....	12,023	4,598
1888.....	15,674	4,001
1889.....	13,565	3,948
1890.....	16,922	5,313
1891.....	16,179	6,665
1892.....	17,782	6,492
1893.....	17,762	5,606
1894.....	14,433	2,223
1895.....	14,569	7,775
1896.....	16,287	11,913
1897.....	16,318	11,231
1898.....	17,661	15,478
1899.....	21,454	22,343
1900.....	19,312	25,615
1901.....	16,311	22,190
1902.....	14,476	23,892
1903.....	18,058	22,177
1904.....	21,626	29,273

*a* Emery in bulk, crushed or ground. Duty free.  
*b* Emery wheels and manufactures of emery. Duty 25 p.c.

TABLE 6.  
ABRASIVE MATERIALS.  
IMPORTS OF PUMICE STONE.

Fiscal year.	Value.
1885.....	\$ 9,384
1886.....	2,777
1887.....	3,594
1888.....	2,890
1889.....	3,232
1890.....	3,003
1891.....	3,696
1892.....	3,282
1893.....	3,798
1894.....	4,160
1895.....	3,609
1896.....	3,721
1897.....	2,903
1898.....	3,829
1899.....	5,973
1900.....	5,604
1901.....	5,516
1902.....	7,254
1903.....	6,152
* 1904.....	6,537

\* Pumice and pumice stone, ground or unground. Duty free.



ASBESTUS.

ASBESTUS.

The Canadian production of asbestos is entirely derived from the province of Quebec. This mineral occurs in this province in connection with rocks of two different ages. In the Eastern Townships it is found in the serpentines which are classed in 'Quebec group' rocks. The centres of production for those deposits are Thetford, Black Lake, East Broughton and Danville. In the district to the north and north-east of Ottawa, asbestos is found in serpentinous and crystalline limestone of Laurentian age. However, only the Eastern Townships deposits are worked at present and they are responsible for the total Canadian output.

The sales of asbestos in 1903 and 1904 were as follows according to returns received by the Department :

—	1903		1904	
	Tons.	Value.	Tons.	Value.
Crude mineral . . . . .	3,134	\$361,867	4,410	\$534,874
Mill Stock . . . . .	27,995	554,021	31,201	678,628
Asbestic . . . . .	10,548	13,869	12,854	12,850
	41,677	929,757	48,465	1,226,352

Mr. Obalski, Inspector of Mines for the province of Quebec, reports the production in 1902, 1903 and 1904 as follows :—

Grade of product.	1902	1903	1904
	Tons.	Tons.	Tons.
1st class crude . . . . .	1,319	930	1,645
2nd " . . . . .	3,131	2,354	2,727
Fibre . . . . .	15,502	9,650	7,771
Paper stock . . . . .	10,682	16,327	23,336
	30,634	29,261	35,479
Asbestic . . . . .	9,764	9,906	13,149
	40,398	39,167	48,628

The figures show a marked increase over the 1903 production, both in quantity and in value. The average price per ton has also been higher owing to a greater proportion of the first and second class products, although the tonnage of the mill stock, the value of which is much inferior, is also higher than the previous years. The prices of asbestos cover a wide range, from \$18 or \$20 a ton for the mill stock to \$175 or \$200 for the best first-class mineral. It is therefore not to wondered at that the average price per ton shows important variations from year to year, more especially if the production of asbestic which sells for \$1 per ton, be taken into account.



ASBESTUS.

The following tables give the condition of the asbestos industry and figures of exports and imports for several years back.

TABLE 1.

ASBESTUS.

PRODUCTION.—1896 TO 1904.

	Tons.	Value.	Average Value per ton.
1896—Asbestos . . . . .	10,892	\$ 423,066	\$ 38.84
Asbestic . . . . .	1,358	6,790	5.00
	12,250	\$ 429,856	\$ 35.09
1897—Asbestos . . . . .	13,202	\$ 399,528	\$ 30.26
Asbestic . . . . .	17,240	45,840	2.66
	30,442	\$ 445,368	\$ 14.63
1898—Asbestos . . . . .	16,124	\$ 475,131	\$ 29.46
Asbestic . . . . .	7,661	16,066	2.10
	23,785	\$ 491,197	\$ 20.65
1899—Asbestos . . . . .	17,790	\$ 468,635	\$ 26.34
Asbestic . . . . .	7,746	17,214	2.22
	25,536	\$ 485,849	\$ 19.03
1900—Asbestos . . . . .	21,621	\$ 729,886	\$ 33.76
Asbestic . . . . .	7,520	18,545	2.46
	29,141	\$ 748,431	\$ 25.68
1901—Asbestos . . . . .	32,892	\$ 1,248,645	\$ 37.96
Asbestic . . . . .	7,325	11,114	1.52
	40,217	\$ 1,259,759	\$ 31.32
1902—Asbestos . . . . .	30,219	\$ 1,126,688	\$ 37.28
Asbestic . . . . .	10,197	21,631	2.12
	40,416	\$ 1,148,319	\$ 28.41
1903—Asbestos . . . . .	31,129	\$ 915,888	\$ 29.42
Asbestic . . . . .	10,548	13,869	1.31
	41,677	929,757	\$ 22.31
1904—Asbestos . . . . .	35,611	\$ 1,213,502	\$ 34.07
Asbestic . . . . .	12,854	12,850	1.00
	48,465	\$ 1,226,352	\$ 25.30



TABLE 2.

ASBESTUS.

ASBESTUS.

PRODUCTION, ETC.—1880 TO 1895.

Calendar Year.	PRODUCTION.			Exports, Average value per,ton.
	Tons (2,000 lbs.)	Value.	Average value per ton.	
		\$	\$ cts.	\$ cts.
1880.....	380	24,700	65.00	Exports taken as production.
1881.....	540	35,100	65.00	
1882.....	810	52,650	65.00	
1883.....	955	68,750	71.98	
1884.....	1,141	75,097	65.80	
1885.....	2,440	142,441	58.37	
1886.....	3,458	206,251	59.64	
1887.....	4,619	226,976	49.14	
1888.....	4,404	255,007	57.90	
1889.....	6,113	426,554	69.77	
1890.....	9,860	1,260,240	127.81	
1891.....	9,279	999,878	107.75	
1892.....	6,082	390,462	64.19	
1893.....	6,331	310,156	49.02	
1894.....	7,630	420,825	55.15	
1895.....	8,756	368,175	42.05	

TABLE 3.

ASBESTUS.

EXPORTS.

Calendar Year.	Tons.	Value,	Average value per ton.
1892.....	5,380	\$373,103	\$69.35
1893.....	5,917	338,707	57.24
1894.....	7,987	477,837	59.82
1895.....	7,442	421,690	56.66
1896.....	11,842	567,967	47.96
1897.....	15,570	473,274	30.40
1898.....	15,346	494,012	32.19
1899.....	17,883	473,148	26.46
1900.....	16,993	693,105	39.61
1901.....	32,269	1,069,918	33.16
1902.....	31,074	995,071	32.02
1903.....	31,780	891,033	28.04
1904.....	37,272	1,160,887	31.14



ASBESTUS.

TABLE 4.  
ASBESTUS.  
IMPORTS.

Fiscal Year.	Value.	Fiscal year.	Value.
1885. . . . .	\$ 674	1895. . . . .	\$26,094
1886. . . . .	6,831	1896. . . . .	23,900
1887. . . . .	7,836	1897. . . . .	19,032
1888. . . . .	8,793	1898. . . . .	26,389
1889. . . . .	9,943	1899. . . . .	32,607
1890. . . . .	13,250	1900. . . . .	43,455
1891. . . . .	13,298	1901. . . . .	50,829
1892. . . . .	14,090	1902. . . . .	52,464
1893. . . . .	19,181	1903. . . . .	75,465
1894. . . . .	20,021	*1904. . . . .	83,827

\*Asbestos in any form other than crude, and all manufactures of. Duty 25 p.c.

Details of the industry, mines in operation during 1904, description of mills, etc., will be found in the yearly report of the Inspector of Mines for the Province of Quebec. It is stated that during 1904, there were 1775 workmen employed for periods of from 5 to 12 months, receiving \$460,000 in wages.

Below is given a list of companies engaged in asbestos mining or in the asbestos trade :—

- Bell's Asbestos Company Ltd., Geo. R. Smith, Mgr., Thetford Mines, Que.
- King's Asbestos Mines, B. Bennett, Mgr., Thetford Mines, Que.
- Johnson's Company, Thetford Mines, Que,
- Beaver Asbestos Company, Ltd., C. H. Van Nostrand, Secretary, 220 Broadway, New York.
- Standard Asbestos Company, Ltd., R. T. Hopper & Co., Montreal, Que.
- Manhattan Asbestos Company, Black Lake, Que.
- Glasgow and Montreal Asbestos Company. Black Lake, Que.
- Canadian Asbestos Company, B. Marcuse, secretary, Montreal, Que.
- Union Asbestos Mines, Black Lake, Que.
- Black Lake Chrome and Asbestos Co., 1724 Notre Dame St., Montreal, Que.
- James Reed, M.D., Reedsdale, Que.
- American Asbestos Company, Ltd., Black Lake, Que.
- Asbestos and Asbestic Co., Ltd., Danville, Que.
- Quebec Asbestos Co., Sherbrooke, Que.
- Broughton Asbestos Co. East Broughton Sta., Que.
- Brompton Lake Asbestos Co., B. Greenshield, Montreal, Que.
- Ottawa Asbestos Mining Co., Ottawa, Ont.
- Syracuse Asbestos Company, Black Lake, Que.



## COAL.

The production of coal for the year 1904 reached a total tonnage of Coal. 8,254,595 tons representing a value of \$16,592,231. This amount represents 27 per cent of the total mineral production of Canada for the year. For the first time since 1897, coal has regained the first place as contributor to our total mineral production. It was in that year that the discovery of gold in the Yukon began to increase the figure of output of that metal to an extent which made coal take a second place among the minerals which contributed the largest proportional values. However, there has been since, a steady increase of the coal figures from year to year, while on the other hand the Yukon gold production, after having reached a zenith in 1900, has since shown signs of diminution, and this year the total gold stands slightly below coal in the table of proportionate values of different mineral products. (*See Introduction*).

In the tables which follow, 1, 2 and 3, statistics are given which allow comparison of the coal production of 1904 with that of the previous year.

TABLE 1.

## COAL.

PRODUCTION BY PROVINCES, 1902, 1903 and 1904.

Province.	1902.		1903.		1904.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
Nova Scotia.....	5,161,316	9,216,636	5,653,338	10,095,246	5,596,241	9,993,288
British Columbia	1,808,441	4,844,040	1,676,581	4,490,844	1,862,625	4,989,174
North-west Territories including Yukon .....	478,129	1,110,521	614,445	1,316,743	786,617	1,591,545
New Brunswick.	18,795	39,680	16,000	40,000	9,112	18,224
Total .....	7,466,681	15,210,877	7,960,364	15,942,833	8,254,595	16,592,231



COAL.

TABLE 2.  
COAL.  
PRODUCTION. COMPARISON OF 1903 AND 1904.

Province.	INCREASE OR DECREASE.			
	Tons.	Per cent.	Value. s	Per cent.
Nova Scotia . . . . .	<i>d</i> 57,097	<i>d</i> 1·01	<i>d</i> 101,958	<i>d</i> 1·01
British Columbia . . . . .	<i>i</i> 186,044	<i>i</i> 11·09	<i>i</i> 498,330	<i>i</i> 11·09
North-west Territories includ- ing Yukon . . . . .	<i>i</i> 172,72,	<i>i</i> 28·02	<i>i</i> 274,802	<i>i</i> 20·87
New Brunswick . . . . .	<i>d</i> 6,888	<i>d</i> 43·05	<i>d</i> 21,776	<i>d</i> 54·44
Dominion . . . . .	<i>i</i> 294,231	<i>i</i> 3·7	<i>i</i> 692,050	<i>i</i> 4·07

*i* Increase. *d* Decrease.

TABLE 3.  
COAL.  
ANNUAL PRODUCTION SHOWING THE INCREASE OR DECREASE EACH YEAR

Calendar Year.	Tons.	Value.	Average Value per Ton	Increase ( <i>i</i> ) or Decrease ( <i>d</i> ) in Tonnage.	Incr. ( <i>i</i> ) or Decr. ( <i>d</i> ) per cent.
1886 . . . .	2,116,653	\$3,739,840	\$1 77	.....	.....
1887 . . . .	2,429,330	4,388,206	1 81	<i>i</i> 312,677	<i>i</i> 14·8
1888 . . . .	2,602,552	4,674,140	1 80	<i>i</i> 173,222	<i>i</i> 7·1
1889 . . . .	2,658,303	4,894,287	1 84	<i>i</i> 55,751	<i>i</i> 2·1
1890 . . . .	3,084,682	5,676,247	1 84	<i>i</i> 426,379	<i>i</i> 16·0
1891 . . . .	3,577,749	7,019,425	1 96	<i>i</i> 493,067	<i>i</i> 16·0
1892 . . . .	3,287,745	6,363,757	1 94	<i>d</i> 290,004	<i>d</i> 8·1
1893 . . . .	3,783,499	7,359,080	1 95	<i>i</i> 495,754	<i>i</i> 15·1
1894 . . . .	3,847,070	7,429,468	1 93	<i>i</i> 63,571	<i>i</i> 1·7
1895 . . . .	3,478,344	6,739,153	1 94	<i>d</i> 368,726	<i>d</i> 9·6
1896 . . . .	3,745,716	7,226,462	1 93	<i>i</i> 267,372	<i>i</i> 7·7
1897 . . . .	3,786,107	7,303,597	1 93	<i>i</i> 40,391	<i>i</i> 1·1
1898 . . . .	4,173,108	8,224,288	1 97	<i>i</i> 387,001	<i>i</i> 10·2
1899 . . . .	4,925,051	10,283,497	2 09	<i>i</i> 751,943	<i>i</i> 18·0
1900 . . . .	5,777,319	13,742,178	2 38	<i>i</i> 852,268	<i>i</i> 17·3
1901 . . . .	6,486,325	12,699,243	1 96	<i>i</i> 709,006	<i>i</i> 12·3
1902 . . . .	7,466,681	15,210,877	2 04	<i>i</i> 980,356	<i>i</i> 15·1
1903 . . . .	7,960,364	15,942,833	2 00	<i>i</i> 493,683	<i>i</i> 6·6
1904 . . . .	8,254,595	16,592,231	2 01	<i>i</i> 294,231	<i>i</i> 3·7



## SESSIONAL PAPER No. 26a

The percentage of production to be credited to the several provinces at various periods since 1874 is shown in the following table :—

Province.	1874.	1880.	1890.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.	p. c.
Nova Scotia.	91	79	71	61·4	63·9	62·7	64·1	69·1	71·0	67·8
B. Columbia.	8	20	25	30·3	29·0	31·0	29·6	24·2	21·0	22·5
N. W. Ter- ritories .. } New Bruns. }	.....	.....	4	8·3	7·1	6·3	6·3	6·7	8·0	9·7

A glance at the above tables will give a general idea of the Canadian coal industry, such as the proportion contributed by each province, the increases and decreases for 1904 over 1903 etc.

The total tonnage shows an increase of 294,231, equal to 3·7 per cent, for which British Columbia and the Northwest Territories are wholly responsible. The two eastern provinces, Nova Scotia und New Brunswick, show slight decreases. However, the decreases are unlikely to be permanent, as they are almost wholly due to a decrease in the output of two of the largest operators, who have been actively pushing their development work, to the detriment of the production.

In the Northwest Territories the increase has been due to a growing activity evenly distributed over the different fields. A great part of the production is used for domestic purposes, and this market of course is growing from year to year as the country becomes more and more settled. The produce of the mines is practically the only fuel available over immense tracts of agricultural and ranching country,

In British Columbia the increase is proportionately distributed among the two producing fields of Vancouver Island and Crows Nest Pass. In the former field, the increase is due to a larger Canadian consumption of coal and somewhat greater exports, whereas in the Crows Nest, an increase in the manufacture of coke is responsible for the higher figure.



COAL.

The following tables give the statistics of exports and imports of coal.

TABLE 4.

COAL.  
EXPORTS.

CALENDAR YEAR.	PRODUCE OF CANADA.	NOT PRODUCE.	CALENDAR YEAR.	PRODUCE OF CANADA.	NOT PRODUCE.
	Tons.	Tons.		Tons.	Tons.
1873.....	420,683	5,403	1889.....	665,315	89,294
1874.....	310,988	12,859	1890.....	724,486	82,534
1875.....	250,348	14,026	1891.....	971,259	77,827
1876.....	248,638	4,995	1892.....	823,733	93,988
1877.....	301,317	4,829	1893.....	960,312	102,827
1878.....	327,959	5,468	1894.....	1,103,694	89,786
1879.....	306,648	8,468	1895.....	1,011,235	96,836
1880.....	432,188	14,217	1896.....	1,106,661	116,774
1881.....	395,382	14,245	1897.....	986,130	101,848
1882.....	412,682	37,576	1898.....	1,150,029	99,189
1883.....	486,811	44,388	1899.....	1,293,169	101,004
1884.....	474,405	62,665	1900.....	1,787,777	62,776
1885.....	427,937	71,003	1901.....	1,573,661	53,894
1886.....	520,703	78,443	1902.....	2,090,268	23,453
1887.....	580,965	89,098	1903.....	1,954,629	27,138
1888.....	588,627	84,316	1904.....	1,557,412	27,308

TABLE 5.

COAL.  
EXPORTS.—NOVA SCOTIA AND BRITISH COLUMBIA.

Calendar Year.	Nova Scotia.		*British Columbia.	
	Tons.	Value.	Tons.	Value.
1874.....	252,124	\$647,539	51,001	\$ 278,180
1875.....	179,626	404,351	65,842	356,018
1876.....	126,520	263,543	116,910	627,754
1877.....	173,389	352,453	118,252	590,263
1878.....	154,114	293,795	165,734	698,870
1879.....	113,742	203,407	186,094	608,845
1880.....	199,552	344,148	219,878	775,008
1881.....	193,081	311,721	187,791	622,965
1882.....	216,954	390,121	179,552	628,437
1883.....	192,795	336,088	271,214	946,271
1884.....	222,709	430,330	245,478	901,440
1885.....	176,287	349,650	250,191	1,000,764
1886.....	240,459	441,693	274,466	960,649
1887.....	207,941	390,738	356,657	1,262,552
1888.....	165,863	330,115	405,071	1,605,650
1889.....	186,608	396,830	470,683	1,918,263
1890.....	202,387	426,070	508,882	1,977,191
1891.....	194,867	417,816	767,734	2,958,695
1892.....	181,547	407,980	599,716	2,317,734
1893.....	203,198	470,695	708,228	2,693,747
1894.....	310,277	633,398	770,439	2,855,216
1895.....	241,091	534,479	728,283	2,692,562
1896.....	380,149	787,270	679,799	2,507,752
1897.....	307,128	642,754	630,341	2,221,737
1898.....	309,158	629,363	813,843	2,948,428
1899†.....	459,260	827,941	781,809	2,947,369

\*See foot-note, table 16. †Since 1899, exports by provinces have not been published in Trade and Navigation Report.



TABLE 6.

COAL.

COAL.

IMPORTS OF BITUMINOUS COAL.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
1880.....	457,049	\$1,220,761	1893.....	1,603,154	3,967,764
1881.....	587,024	1,741,568	1894.....	1,359,509	3,315,094
1882.....	636,374	1,992,081	1895.....	1,444,928	3,321,387
1883.....	911,629	2,996,198	1896.....	1,538,489	3,299,025
1884.....	1,118,615	3,613,470	1897.....	1,543,476	3,254,217
1885.....	1,011,875	3,197,539	1898.....	1,684,024	3,179,595
1886.....	930,949	2,591,554	1899.....	2,171,358	3,691,946
1887.....	1,149,792	3,126,225	1900.....	2,439,764	4,310,964
1888.....	1,231,234	3,451,661	1901.....	2,516,392	4,956,025
1889.....	1,248,540	3,255,171	1902.....	3,047,392	5,712,058
1890.....	1,409,282	3,528,959	1903.....	3,511,412	7,776,717
1891.....	1,598,855	4,060,896	1904.....	4,053,900	9,108,208
1892.....	1,615,220	4,099,221			

\*Duty, 53c. per ton.

TABLE 7.

COAL.

IMPORTS OF ANTHRACITE COAL.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
1880.....	516,729	\$1,509,960	1893.....	1,500,550	6,355,285
1881.....	572,092	2,325,937	1894.....	1,530,522	6,354,040
1882.....	638,273	2,666,356	1895.....	1,404,342	5,350,627
1883.....	754,891	3,344,936	1896.....	1,574,355	5,667,096
1884.....	868,000	3,831,283	1897.....	1,457,295	5,695,168
1885.....	910,324	3,909,844	1898.....	1,460,701	5,874,685
1886.....	995,425	4,028,050	1899.....	1,745,460	6,490,509
1887.....	1,100,165	4,423,062	1900.....	1,654,401	6,602,912
1888.....	†2,138,627	5,291,875	1901.....	1,933,283	7,923,950
1889.....	1,291,705	5,199,481	1902.....	1,652,451	7,021,939
1890.....	1,201,335	4,595,727	1903.....	1,456,713	7,028,664
1891.....	1,399,067	5,224,452	1904*.....	2,275,018	10,461,223
1892.....	1,479,106	5,640,346			

\* Coal anthracite, and anthracite coal dust. Duty free.

† In Table 7, Imports of Anthracite Coal, a very considerable increase will be noticed in 1888 over 1887, an increase of over ninety-four per cent, the falling off again in 1889 being quite as remarkable. The average values per ton for the three years 1887, 1888 and 1889, were \$4.02, \$2.47 and \$4.03 respectively. Although a duty of fifty cents per ton on anthracite coal was removed May 13, 1887, it is hardly thought this would account for the changes indicated, and unless some error may possibly have crept into the Trade and Navigation Report, no explanation is available.



5-6 EDWARD VII., A. 1906

## COAL.

TABLE 8.

## COAL.

## IMPORTS OF COAL DUTY.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
1880.	3,565	\$ 8,877	1893.....	109,585	44,474
1881.....	337	666	1894.....	117,573	49,510
1882. ....	471	900	1895. ....	181,318	52,221
1883. ....	8,154	10,082	1896.....	210,386	53,742
1884.....	12,782	14,600	1897. ....	225,562	59,609
1885.....	20,185	20,412	1898.....	229,445	45,556
1886.....	36,230	36,996	1899.....	276,547	44,717
1887.....	31,401	33,178	1900.....	330,174	98,349
1888.....	28,808	34,730	1901.....	414,432	275,559
1889.....	39,980	47,139	1902.....	489,548	264,550
1890.....	53,104	29,818	1903.....	550,883	420,317
1891.....	60,127	36,130	1904.....	608,041	544,123
1892.....	82,091	39,840			

\* Duty, 20 p. c., not over 13c. per ton.

Ontario is of course largely dependent on imports from the United States for its supply of bituminous coal. Western Quebec and Manitoba also import large quantities. This is mainly used in local industries. For domestic use the eastern provinces are altogether dependent on the anthracite from the United States, whereas the western provinces derive part of their domestic supply from the Cascades coal fields on the eastern slope of the Rocky Mountains through which runs the Canadian Pacific Railway, where a very good quality of anthracite is produced, and from some parts of the coal fields along the Crows Nest Pass Railway branch ; which last source yields a bituminous coal, high in fixed carbon, greatly prized for household purposes.

To offset the imports from the United States, both Nova Scotia and British Columbia shew a substantial coal export trade the main market for which, are the seaboard ports of the Atlantic and of the Pacific coasts, although quite an appreciable quantity is also shipped to Montana by rail, from the Crows Nest field.

To sum up, however, while only about half the quantity of coal consumed in Canada is derived from Canadian mines, such quantities are exported that we actually produce about 60 per cent of our requirements. The following statement will show at a glance the comparison between the Canadian imports, exports, and consumption of coal during the year 1904. It is of course to be regretted that so much coal has to be imported, when we have unlimited supplies of it, but the middle provinces of Canada are so distant from the producing Canadian coal fields, that they will always have to draw their supply chiefly from the less remote United States coal districts.



## SESSIONAL PAPER No. 26a

Production, Table 3.....	8,254,595	COAL.
Exports of coal the produce of Canada, Table 4.....	1,557,412	
Home consumption of Canadian coal.....	6,697,183	
Imports of bituminous, anthracite and coal dust, Tables 6, 7 and 8 .....	6,936,959	
Exports of coal not the produce of Canada.....	27,308	
Home consumption of imported coal.. . . .	6,909,651	
Total consumption of coal in Canada.....	13,606,834	

TABLE 9.

## COAL.

## CONSUMPTION OF COAL IN CANADA.

Calendar Year	Canadian.	Imported.	Total.	Percentage Canadian.	Percentage Imported.	Consump- tion per capita.
	Tons.	Tons.	Tons.			Tons.
1886.....	1,595,950	1,884,161	3,480,111	45.9	54.1	.758
1887.....	1,848,365	2,192,260	4,040,625	45.7	54.3	.871
1888.....	2,013,925	3,314,353	5,328,278	37.8	62.2	1.137
1889.....	1,992,988	2,490,931	4,483,919	44.4	55.6	.946
1890.....	2,360,196	2,581,187	4,941,383	47.8	52.2	1.031
1891.....	2,606,490	2,980,222	5,586,712	46.7	53.3	1.153
1892.....	2,464,012	3,082,429	5,546,441	44.4	55.6	1.133
1893.....	2,823,187	3,110,462	5,933,649	47.6	52.4	1.198
1894.....	2,743,376	2,917,818	5,661,194	48.5	51.5	1.130
1895.....	2,467,109	2,933,752	5,400,861	45.7	54.3	1.066
1896.....	2,639,055	3,206,456	5,845,511	45.1	54.9	1.140
1897.....	2,799,977	3,124,485	5,924,462	47.3	52.7	1.143
1898.....	3,023,079	3,274,981	6,298,060	48.0	52.0	1.200
1899.....	3,631,882	4,092,361	7,724,243	47.0	53.0	1.454
1900.....	3,989,542	4,361,563	8,351,105	47.8	52.2	1.561
1901.....	4,912,664	4,810,213	9,722,877	50.5	49.5	1.810
1902.....	5,376,413	5,165,938	10,542,351	51.0	49.0	1.927
1903.....	6,005,735	5,491,870	11,507,605	52.2	47.8	2.055
1904.....	6,697,183	6,909,651	13,606,834	49.2	50.8	2.346

If the consumption of coal is to be regarded as one of the indices of prosperity of a country, the table above will show gratifying results. Not only has the total tonnage used, greatly increased, but the per capita consumption shows from year to year a steady growth, which for the last decade does not once show retrogression.

NOVA SCOTIA.—The total production of Nova Scotia, shows a slight decrease over that for the previous year. This, however, is not to be taken as a sign of decreasing activity in the coal industry of the province. The companies which are mainly responsible for the lower figure, are two of the very important producers, viz., the Dominion Coal Company in Cape Breton county, and the Acadia Coal Company in Pictou county. With great foresight, these two companies have been pushing the development work of their collieries, and next year it is expected that the output will more than make up the slight falling off of this year.



COAL.  
Nova Scotia.

TABLE 10.  
COAL.  
NOVA SCOTIA: OUTPUT, SALES, COLLIERY CONSUMPTION, AND PRODUCTION.

Calendar Year.	Output, Tons, 2,240 lbs.	Sales, Tons, 2,240 lbs.	Colliery Consump- tion, Tons, 2,240 lbs.	Production Tons, 2,240 lbs.	Output, Tons, 2,000 lbs.	Sales, Tons, 2,000 lbs.	Colliery Consump- tion, Tons, 2,000 lbs.	Production* Tons, 2,000 lbs.	Price per Ton. 2,240 lbs.	Value of production.
1872	880,950	785,914	110,341	896,255	986,664	880,224	123,582	1,003,806	81 75	81,568,446
1873	1,051,467	881,106	108,398	989,504	1,177,643	986,839	121,406	1,108,245	1 75	1,731,632
1874	872,720	749,127	119,582	868,709	977,446	839,022	133,932	972,954	1 75	1,520,240
1875	781,165	706,795	124,110	830,905	874,905	791,610	139,003	930,613	1 75	1,454,084
1876	709,646	634,207	113,788	747,995	791,804	710,312	127,443	837,755	1 75	1,308,991
1877	757,496	687,065	98,841	785,906	848,396	769,513	110,702	880,215	1 75	1,375,339
1878	770,603	693,511	88,627	782,138	863,075	776,732	99,262	875,994	1 75	1,368,741
1879	788,271	688,624	81,787	773,111	882,863	771,259	94,961	866,220	1 75	1,353,469
1880	1,032,710	954,659	96,831	1,051,190	1,156,635	1,069,218	108,451	1,177,669	1 75	1,840,108
1881	1,124,270	1,035,014	107,888	1,142,902	1,259,183	1,159,216	120,834	1,280,050	1 75	2,000,079
1882	1,365,811	1,250,179	111,381	1,361,560	1,529,708	1,400,200	124,747	1,524,947	1 75	2,382,730
1883	1,422,553	1,297,523	111,949	1,409,472	1,593,259	1,453,226	125,383	1,578,609	1 75	2,466,576
1884	1,389,295	1,261,650	116,769	1,378,419	1,556,011	1,413,048	130,781	1,543,829	1 75	2,412,233
1885	1,352,205	1,254,510	127,624	1,382,134	1,514,470	1,405,051	142,939	1,547,990	1 75	2,418,735
1886	1,502,611	1,373,666	142,421	1,516,087	1,682,924	1,538,506	159,512	1,698,018	1 75	2,653,152
1887	1,670,830	1,519,684	139,777	1,659,461	1,871,330	1,702,046	156,550	1,858,596	1 75	2,904,057
1888	1,776,128	1,576,692	157,443	1,734,135	1,989,263	1,765,895	176,336	1,942,231	1 75	3,034,735
1889	1,756,279	1,555,107	158,131	1,713,238	1,967,032	1,741,720	177,107	1,918,827	1 75	2,998,167
1890	1,984,001	1,786,111	161,240	1,947,351	2,222,081	2,000,444	180,589	2,181,033	1 75	3,407,864
1891	2,044,784	1,849,945	174,983	2,024,928	2,290,158	2,071,938	195,981	2,267,919	1 75	3,543,624
1892	1,942,780	1,752,934	175,092	1,928,026	2,175,913	1,963,286	196,103	2,159,389	1 75	3,374,046
1893	2,223,042	1,977,543	205,425	2,182,968	2,489,807	2,214,848	230,076	2,444,924	1 75	3,820,194
1894	2,250,631	2,060,920	196,206	2,257,126	2,520,707	2,308,231	219,751	2,527,982	1 75	3,949,970
1895	1,999,756	1,793,098	193,639	1,986,737	2,239,727	2,008,270	216,875	2,225,145	1 75	3,476,790
1896	2,292,675	2,046,828	192,975	2,239,803	2,567,796	2,292,447	216,132	2,508,579	1 75	3,919,655
1897	2,340,031	2,044,672	181,716	2,226,388	2,620,835	2,290,032	203,522	2,493,554	1 75	3,896,179
1898	2,262,656	2,121,126	167,428	2,288,554	2,534,175	2,375,661	187,519	2,563,180	1 75	4,004,970
1899	2,865,443	2,633,989	177,460	2,811,449	3,209,296	2,950,067	198,755	3,148,822	2 00	5,622,898
1900	3,298,791	2,998,737	236,563	3,235,300	3,694,646	3,358,585	264,951	3,623,536	2 50	8,088,250
1901	3,821,033	3,411,127	301,434	3,712,561	4,279,557	3,820,462	337,606	4,158,068	1 75	6,496,982
1902	4,725,480	4,229,120	379,198	4,608,318	5,292,538	4,736,614	424,702	5,161,316	2 00	9,216,636
1903	5,215,562	4,565,720	481,903	5,047,623	5,841,429	5,113,607	539,731	5,653,388	2 00	10,095,246
1904	5,131,985	4,551,740	444,904	4,996,644	5,747,823	5,097,949	498,292	5,596,241	2 00	9,993,288

\* This Production is obtained by adding Sales and Colliery Consumption. For sales previous to 1872, see report of the Department of Mines, Nova Scotia, 1883, page 68.



TABLE 11.  
COAL.  
NOVA SCOTIA: COAL TRADE BY COUNTIES.

CALENDAR YEAR.	CUMBERLAND.		PICTOU.		CAPE BRETON.		OTHER COUNTIES.	
	Raised.		Sold.		Raised.		Raised.	
	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.	Tons, 2,000 lbs.
1st quarter.....	154,643	122,989	179,234	151,502	813,719	526,038	44,706	25,334
2nd ".....	198,426	173,046	179,004	157,538	1,116,540	1,029,237	90,231	64,936
3rd ".....	177,815	156,461	171,563	157,501	1,092,956	1,153,323	111,657	89,858
4th ".....	200,432	168,673	181,127	155,817	950,218	904,571	85,552	61,125
Total, 1901.....	731,316	621,169	716,928	622,358	3,973,433	3,613,169	332,146	241,253
" 1903.....	679,332	590,171	792,164	695,120	4,073,824	3,590,565	296,110	237,750

COAL.



5-6 EDWARD VII., A. 1906

COAL

TABLE 12.

COAL.

NOVA SCOTIA:—OUTPUT BY COLLIERIES DURING THE CALENDAR YEAR 1904.

Colliery.	Tons, 2,000 lbs.	Colliery.	Tons, 2,000 lbs.
<i>Cumberland County.</i>		<i>Inverness County.</i>	
Maritime Coal Co.....	54,053	Port Hood Coal Co.....	84,825
Fundy Coal Co.....	11,326	Mabou Coal Mining Co....	6,792
Canada Coal & Railway Co.	44,717	Inverness Ry. and Coal Co	233,502
Minudie Coal Co.....	43,174	<i>Victoria County.</i>	
Ripley & Blenckorn.....	2,032	Cape Breton Coal Co. ....	7,027
Cumberland Ry. & Coal Co.	566,708	<i>Cape Breton County.</i>	
Strathcona Coal Co. ....	9,306	Sydney Coal Co.....	8,138
<i>Pictou County.</i>		Dominion Coal Co.....	3,386,345
Acadia Coal Co.....	344,417	N. Scotia Steel & Coal Co.	533,703
Intercolonial Coal Co. ....	297,427	Gowrie and Blockhouse collieries.....	45,247
Nova Scotia Steel and Coal Co. ....	69,084	Total.....	5,747,823

The Dominion Coal Company has made a start towards developing the large submarine areas which they hold along the eastern coast of Cape Breton. After a series of conferences between the government mining inspector and the company's officials an agreement was reached as to size of pillars and rooms, main ways, barriers, thickness of corners, etc., both the safety of the workmen and the interests of the company having been considered.

The Dominion Coal Company is also opening up a new vein called Dominion No. 6 on the tongue of land between Big Glace Bay and Schooner Pond. This will be worked by slopes on the Phelan Seam. It is expected to be in shipping order in the spring of 1905. All the other collieries of the company worked steadily during the year.

The Cape Breton Coal, Iron and Railway Company have been going on with their development work at Cochrane Lake. The intention is to establish a large modern colliery; a town site (Broughton) has been laid out and a spur of railroad is being built to connect the mine with the Sydney and Louisburg Railway.

All the other mines of the Island of Cape Breton, produced steadily.

In Pictou county, the Acadia Coal Company did a great deal of development work, somewhat to the detriment of the output. This company is now sinking a pair of shafts to tap the different seams of the basin, and the intention is to ultimately concentrate all



the hoisting operations on this point. The other companies of this COAL district, produced steadily.

In Cumberland county, the heaviest producer is the Cumberland Railway and Coal Company, who operate the Spring Hill mines. Their production shows an increase over last year.

The Canada Coal and Railway Company, Joggins Mines, experienced a great deal of trouble on account of a fire and a strike. The output was materially affected by these causes, and is much lower than that of last year. The Chignecto colliery has been taken over by the Maritime Coal and Railway Company, Ltd., who have doubled last year's production and who pushed development work very actively.

The following table shows the markets to which the Nova Scotia coal finds its way. It will be observed that outside of the province itself, the main outlets are the Province of Quebec, and the exports to the United States.

TABLE 13.  
COAL.  
NOVA SCOTIA:—DISTRIBUTION OF COAL SOLD.

Markets.	Calendar Years.					
	1902.		1903.		1904.	
	Tons, 2,000 lbs.	Per cent.	Tons. 2,000 lbs.	Per cent.	Tons, 2,000 lbs.	Per cent.
Nova Scotia, transported by land . . . . .	468,658	9·9	727,122	14·2	918,822	18·0
Nova Scotia, transported by sea . . . . .	1,175,644	24·8	977,756	19·1	724,289	14·2
Total, Nova Scotia...	1,644,302	34·7	1,704,878	33·3	1,643,111	32·2
New Brunswick.....	358,664	7·6	435,537	8·5	474,053	9·3
Prince Edward Island.....	70,316	1·5	88,649	1·7	95,177	1·9
Quebec.....	1,492,902	31·5	1,609,205	31·5	1,916,384	37·6
Newfoundland.....	118,041	2·5	155,751	3·1	155,794	3·1
United States.....	1,004,650	21·2	1,009,420	19·7	730,658	14·3
West Indies.....	6,700	·1	.....	.....	.....	.....
Other countries.....	41,039	·9	110,167	2·2	82,772	1·6
Total . . . . .	4,736,614	100·0	5,113,607	100·0	5,097,949	100·0

NEW BRUNSWICK.—The greater proportion of the New Brunswick production is derived from the Grand Lake district, which has now greatly increased shipping facilities, owing to the completion of the



COAL. railroad which connects Newcastle and Minto to Norton on the Inter-colonial Railroad. Besides this, a great deal of coal is shipped during the summer by barges to St. John and Fredericton. The coal operations in the district are on a small scale, the seams are thin, and a great deal of dead work has to be done to allow sufficient height to work.

Some work has also been done in Kent county, the Coal Branch district, and a spur of railroad has been built, which should be a great help to the industry.

TABLE 14.  
COAL.  
NEW BRUNSWICK :—PRODUCTION.

Calendar Year.	Tons.	Value.	Value per ton.
1887.....	10,040	\$ 23,607	\$2 35
1888.....	5,730	11,050	1 93
1889.....	5,673	11,733	2 07
1890.....	7,110	13,850	1 95
1891.....	5,422	11,030	2 03
1892.....	6,768	9,375	1 39
1893.....	6,200	9,837	1 59
1894.....	6,469	10,264	1 59
1895.....	9,500	14,250	1 50
1896.....	7,500	11,250	1 50
1897.....	6,000	9,000	1 50
1898.....	6,160	9,240	1 50
1899.....	10,528	15,792	1 50
1900.....	10,000	15,000	1 50
1901.....	17,630	51,857	2 94
1902.....	18,795	39,680	2 11
1903.....	16,000	40,000	2 50
1904.....	9,112	18,224	2 00



TABLE 15.

COAL.

COAL.

NORTH-WEST TERRITORIES :—PRODUCTION.

Calendar Year.	Tons.	Value.	Value per ton.
1887. ....	74,152	\$ 157,577	\$ 2 13
1888. ....	115,124	183,354	1 59
1889. ....	97,364	179,640	1 85
1890. ....	123,953	198,498	1 54
1891. ....	174,131	437,243	2 51
1892. ....	184,370	469,930	2 55
1893. ....	238,395	598,745	2 51
1894. ....	199,991	488,980	2 45
1895. ....	185,654	414,064	2 23
1896. ....	225,868	606,891	2 69
1897. ....	267,163	667,908	2 50
1898. ....	340,088	825,220	2 43
1899. ....	334,600	811,500	2 43
1900. ....	351,950	839,375	2 38
1901. ....	391,139	1,008,917	2 58
1902. ....	478,129	1,110,521	2 32
1903. ....	614,445	1,316,743	2 14
1904. ....	786,617	1,591,545	2 02

NORTH-WEST TERRITORIES.—The production, as may be seen by glancing at table 15, is yearly increasing at a rapid rate, following in this the development of this part of Canada. In the North-west Territories, coal mining is mainly carried on in the Estevan district, which is in the south-eastern corner of Assiniboia ; on the Crows Nest Branch of the Canadian Pacific Railway, between Lethbridge and the Rocky Mountains ; in the Cascade Basin on the main line of the C.P.R., and around Edmonton. In each of these districts, great developments have taken place during 1904, and the production next year will be considerably increased. In the Estevan field the heaviest producers are the Souris Coal Company. But the C.P.R. Mining and Metallurgical Department are doing a great deal of development and constructing an important surface plant at Bienfait.

Along the Crows Nest Pass Railway, several new collieries are being added to the old producers. The International Coal and Coke Company are working very actively at their Coleman colliery, where they are putting up a very modern and complete plant. The Breckenridge Lund Coal Company intend to establish, at Lundbreck a complete and up-to-date colliery. Among the older producers, the Lethbridge colliery has worked very steadily. The Frank colliery, of the Canadian American Coal and Coke Company, which had been so seriously



## COAL.

affected by the great landslide of April, 1903, has again started to ship, and is now in good working order. The West Canadian Colliery Company has worked two collieries, at Lille and Bellevue, near Frank. At the Bellevue colliery, the work has been mainly of a development nature. In the Cascade Basin, the mine at Canmore continued to produce steadily. One of the features of the year, has been the abandonment of the mine at Anthracite, which had been a good producer for a great many years. The product of the mine was an anthracite mainly used for domestic purposes. This kind of coal will in the future be mined by the Pacific Coal Company, who are establishing a large colliery at Bankhead, three miles north of Banff.

The mines in the vicinity of Edmonton do not show any special features. They worked more or less steadily throughout the year. There is little doubt, however, that a large and steady increase of the coal production of the North-west Territories may be looked forward to, following the growth and development of that part of Canada.



SESSIONAL PAPER No. 26a

TABLE 16.

COAL.

COAL.

BRITISH COLUMBIA :—PRODUCTION.

Calendar Year.	Output Tons, 2,240 lbs.	Home Consumption, Tons, 2,240 lbs.	Sold for Export, Tons. †	PRODUCTION.*		Price per ton, 2,240 lbs.	Value.
				Tons, 2,240 lbs.	Tons, 2,000 lbs.		
1836-52..	10,000				11,200	4 00	40,000
1852-59..	25,398				28,446	4 00	101,592
1859†...	1,989				2,228	4 00	7,956
1860.....	14,247				15,957	4 00	56,988
1861.....	13,774				15,427	4 00	55,096
1862.....	18,118				20,292	4 00	72,472
1863.....	21,345	From 1836 to 1873 inclusive, the output is taken as production.			23,906	4 00	85,380
1864.....	28,632				32,068	4 00	114,528
1865.....	32,819				36,757	4 00	131,276
1866.....	25,115				28,129	4 00	100,460
1867. . .	31,239				34,988	4 00	124,956
1868.....	44,005				49,286	4 00	176,020
1869.....	35,802				40,098	4 00	143,208
1870.....	29,843				33,424	4 00	119,372
1871-2-3.	148,459				166,274	4 00	593,836
1874.....	81,547	25,023	56,038	81,061	90,788	3 00	243,183
1875.....	110,145	31,252	66,392	97,644	109,361	3 00	292,932
1876.....	139,192	17,856	†122,329	140,185	157,007	3 00	420,555
1877.....	154,052	24,311	115,381	139,692	156,455	3 00	419,076
1878. . .	170,846	26,166	164,682	190,848	213,750	3 00	572,544
1879. . .	241,301	40,294	192,096	232,390	260,277	3 00	697,170
1880. . .	267,595	46,513	225,849	272,362	305,045	3 00	817,086
1881.....	228,357	40,191	189,323	229,514	257,056	3 00	688,542
1882.....	282,139	56,161	232,411	288,572	323,201	3 00	865,716
1883. . .	213,299	64,786	149,567	214,353	240,075	3 00	643,059
1884. . .	394,070	87,388	306,478	393,866	441,130	3 00	1,181,598
1885.....	365,596	95,227	237,797	333,024	372,987	3 00	999,072
1886.....	326,636	85,987	249,205	335,192	375,415	3 00	1,005,576
1887.....	413,360	99,216	334,839	434,055	486,142	3 00	1,302,165
1888.....	489,301	115,953	365,714	481,667	539,467	3 00	1,445,001
1889. . .	579,830	124,574	443,675	568,249	636,439	3 00	1,704,747
1890.....	678,140	177,075	508,270	685,345	767,586	3 00	2,056,035
1891.....	1,029,047	202,697	806,479	1,009,176	1,130,277	3 00	3,027,528
1892.....	826,335	196,223	640,579	836,802	937,218	3 00	2,510,406
1893.....	978,294	207,851	768,917	976,768	1,093,980	3 00	2,930,304
1894.....	1,012,953	165,776	827,642	993,418	1,112,628	3 00	2,980,254
1895.....	939,654	188,349	756,334	944,683	1,058,045	3 00	2,834,049
1896.....	894,882	261,984	634,238	896,222	1,003,769	3 00	2,688,666
1897.....	892,296	290,310	619,860	910,170	1,019,390	3 00	2,730,510
1898. . .	1,136,485	375,423	752,863	1,128,286	1,263,680	3 00	3,384,858
1899.....	1,306,324	526,058	751,711	1,277,769	1,431,101	3 00	3,833,307
1900. . .	1,590,178	685,667	914,184	1,599,851	1,791,833	3 00	4,799,553
1901.....	1,691,557	799,666	914,163	1,713,829	1,919,488	3 00	5,141,487
1902.....	1,641,626	837,871	776,809	1,614,680	1,808,441	3 00	4,844,040
1903.....	1,450,663	947,499	549,449	1,496,948	1,676,581	3 00	4,490,844
1904.....	1,685,698	1,129,465	533,593	1,663,058	1,862,625	3 00	4,989,174

\*This production is obtained by adding 'Home Consumption' and 'Sold for Export.'

†52,935 of this amount was exported as sales without the division into the 'Home Consumption' and 'Sold for Export.'

‡The figures in the 'Sold for Export' column do not agree as they should with those given in Table 5, the only explanation being that the data in the two cases are from different sources, and it has not been possible to find out the cause of the difference.

¶Two months only.



COAL.

For British Columbia the total figures of production for 1904 show a substantial increase over 1903. The increase is mainly due to the larger amount of coal used in making coke. Exports of coal to the United States have slightly fallen off while on the other hand the exports of coke to that country shows a very large increase.

Statistics of coal production for 1904 are given in the annual report of the Minister of Mines as follows :—

SALES AND OUTPUT FOR YEAR. Tons of 2240 lbs.	Tons.		Cwt.	
Sold for consumption in Canada.. .. .	537,744	.....		
"    export to U.S.A.....	532,436	.....		
"    "    to other countries .....	1,157	.....		
Total sales.....			1,071,337	
Used under colliery boilers, &c.....	159,651	.....		
Used in making coke.....	432,070	.....		
Total for colliery use.....			591,721	
Stock on hand first of year.....	8,130	.....		
"    "    last of year.....	30,770	.....		
Difference added to stock during the year.....			22,640	
Output of collieries for year.....			1,685,698	

Statistics of labour and wages are given in the same report as follows :—

NUMBER OF HANDS EMPLOYED, DAILY WAGES PAID, &c.

CHARACTER OF LABOUR.	UNDERGROUND.		ABOVE GROUND.		TOTAL.	
	No. of employees	Average daily wage	No. of employees	Average daily wage	No. of employees	Average daily wage
Supervision and clerical assistance .....	89	\$ 6 87	51	\$ 4 50	140	\$ 5 68
Whites--						
Miners .. .. .	1,614	3 75			1,614	3 75
Miners' helpers.....		2 75				2 75
Labourers .....		2 87		2 50		2 68
} .....	1,378		547		1,925	
Mechanics and skilled lab. }		2 62		3 62		3 62
Boys .....		2 87		1 33		1 60
Japanese .....	17	1 37	28	1 25	45	1 31
Chinese .....	181	1 37	549	1 25	729	1 31
Totals.....	3,278		1,175		4,443	



## SESSIONAL PAPER No. 26a

Only three fields in British Columbia are yet producing, viz., the COAL. Nanaimo field and the Comox or Cumberland field, both of which are situated on the east coast of Vancouver Island, and the Crows Nest Pass field in the East Kootenay district. On Vancouver Island the two larger companies operating are, the Western Fuel Company and the Wellington Colliery Company, who ship almost entirely by water, the market being nearly equally divided between American and Canadian ports. In the Crows Nest Pass only one company is producing at present, the Crows Nest Pass Coal Company, which has three collieries, viz. at Coal Creek, Michel and Carbonado. About two-fifths of their output is used for making coke and one-quarter exported to the United States by rail, the balance being consumed in Canada.

There exist other coal fields in British Columbia, some of which could easily be developed, should the demand arise. Even now, in the Nicola Valley, extensive boring and development work is going on. In 1904 there were at least five companies who had started operations in this district. Dr. R. W. Ells has reported at length on these coal fields, in the Summary report of the Geological Survey for 1904 (pages 42 to 69).

Exploration work has been pursued in the Skeena district and extensive seams are reported to have been discovered. These fields, however, will necessarily remain dormant until the construction of the Grand Trunk Pacific line and spurs.

The following figures are interesting as showing the sources of the coal which supplies the Californian market. The very important falling off in the imports, is due to the introduction of crude oil as fuel for a great many purposes.

Whence derived.	1901.	1902.	1903.
	Tons. 2,240 lbs.	Tons. 2,240 lbs.	Tons. 2,240 lbs.
British Columbia.....	710,330	591,732	289,890
Australia.....	175,959	197,328	276,186
England and Wales.....	52,270	95,621	61,580
Scotland.....		3,600	3,495
Eastern (Cumberland and Anthracite)....	27,370	24 133	13,262
Seattle (Washington).....	240,574	165,237	127,819
Tacoma.....	433,817	209,358	256,826
Mount Diable, Coos Bay and Tesla.....	143,318	111,209	84,277
Japan and Rocky Mountains.....	51,147	47,380	102,219
Totals.....	1,834,785	1,445,598	1,215,554



COAL. We give below a list of the principal coal producers in Canada.

NOVA SCOTIA—

Dominion Coal Company.....	Glace Bay, C.B.
Nova Scotia Steel and Coal Company....	Sydney Mines, C.B.
Cape Breton Coal, Iron and Railway Co'y..	Broughton, C.B.
Gowrie and Blockhouse Collieries.....	Port Morien, C.B.
Sydney Coal Company, Ltd .....	Sydney Mines, C.B.
Cape Breton Coal Mining Co. ....	Newcampellton, C.B.
Inverness Railway and Coal Co.....	Inverness, C.B.
Port Hood Coal Company.....	Port Hood, C.B.
Mabou Coal Mining Co.....	Mabou, C.B.
Nova Scotia Collieries, Ltd .....	Chimney Corner, C.B.
Intercolonial Coal Mining Company.....	Westville, N.S.
Acadia Coal Company, Ltd .....	Stellarton, N.S.
Cumberland Railway and Coal Co. Ltd....	Springhill, N.S.
Canada Coals and Railway Co. Ltd.. ....	Joggins Mines, N.S.
Minudie Coal Company, Ltd.....	River Hebert, N.S.
Strathcona Coal Company.....	" "
Maritime Coal Company.....	Chignecto, N.S.
Ripley and Blenkhorn.....	" "
Fundy Coal Company. ....	Lower Cove, N.S.

NEW BRUNSWICK :—

New Brunswick Coal and Railway Company....	Norton, N.B.
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NORTH-WEST TERRITORIES :—

Alberta Railway and Irrigation Company.....	Lethbridge, Alta.
The Canadian American, Coal and Coke Co.....	Frank, Alta.
West Canadian Collieries.....	Blairmore, Alta.
International Coal and Coke Company ....	Coleman, Alta.
H. W. McNeil Company.....	Canmore, Alta.
Breckenridge and Lund Coal Co.....	Lundbreck, Alta.
Pacific Coal Company.....	Bankhead, Alta.
C.P.R. Mining and Metallurgical Dept.....	Bienfait, Assa.
Souris Coal Company.....	Coalfields, Assa.
Roche Percee Coal Mining Company.....	Roche Percee, Assa.
Eureka Brick and Coal Co.....	Estevan, Alta.
Edmonton Coal Co.....	Edmonton, Alta.
Mays Coal Mining Co.....	" "
James R. Stewart Mining Co.....	" "
The Knee Hill Coal Co.....	Knee Hill "



SESSIONAL PAPER No. 26a

BRITISH COLUMBIA :—

COAL.

The Crows Nest Coal Co.....	Fernie, B.C.
The Western Fuel Co.....	Nanaimo, V.I., B.C.
Wellington Colliery Co.....	Ladysmith, B.C.
The Nicola Valley Coal Co.....	Spokane, Wash., U.S.A.
The Coutlee Coal and Iron Co.....	Colfax, Was. U.S.A.
The Nicola Coal and Iron Co .....	Vancouver, B.C.
The Nicola, Kamloops and Similkameen Coal and Railway Co.....	Ottawa, Ont.
The Diamond Vale Coal and Iron Mines, Ltd..	Vancouver, B.C.

YUKON DISTRICT :—

Coal Creek Coal Co., Ltd.....	Dawson, Yukon.
North American Transportation and Trading Co.	
Cliff Creek Mines .....	" "
Alaska Exploration Co. Rock Creek Mine.....	" "
R. S. Ames and Geo. Miller, Five Fingers Mine.	" "
White Horse Coal Co.....	White Horse,"

COKE.

The total production of coke for the year 1904 shows a tonnage inferior to that of 1903, but nevertheless the total value has materially increased. This is due to the fact that the British Columbia production has grown very much, and the value per ton is greater in the west than on the Atlantic coast,

TABLE 1.  
COKE.  
ANNUAL PRODUCTION.

COKE.

Calendar Year.	Tons.	Value.	Value. per Ton.
1886.....	35,396	\$101,940	\$2.88
1887.....	40,428	135,951	3.36
1888.....	45,373	134,181	2.96
1889.....	54,539	155,043	2.84
1890.....	56,450	166,298	2.95
1891.....	57,084	175,592	3.08
1892.....	56,135	160,249	2.85
1893.....	61,078	161,790	2.65
1894.....	58,044	148,551	2.56
1895.....	53,356	143,047	2.68
1896.....	49,619	110,257	2.22
1897.....	60,686	176,457	2.91
1898.....	87,600	286,000	3.26
1899.....	100,820	350,022	3.47
1900.....	157,134	649,140	4.13
1901.....	365,531	1,228,225	3.36
1902.....	502,043	1,519,185	3.03
1903.....	561,318	1,734,404	3.09
1904.....	554,083	2,032,048	3.66



COKE.

The figures show a diminution in quantity of 7,235 tons. Taking the production by provinces, we find that Nova Scotia comes in for a rather heavy decrease of 95,818 tons. This is due to several causes, the main one being the decrease in the activity of the operations of the Dominion Iron and Steel Company, due to the strike of their working-men, during which, all work was practically suspended. A renewed activity is looked forward to for the next year.

TABLE 2.  
COKE.  
PRODUCTION OF COKE BY PROVINCES.

Calendar Year.	Nova Scotia.		British Columbia.		N. W. Territories.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$
1897.....	41,532	90,950	19,154	85,507	.....	.....
1898.....	48,400	111,000	39,200	175,000	.....	.....
1899.. . . .	62,459	178,767	38,361	171,255	.....	.....
1900.....	61,767	223,395	95,367	425,745	.....	.....
1901.....	222,694	590,560	142,837	637,665	.....	.....
1902.....	363,330	899,930	138,713	619,255	.....	.....
1903... . . .	371,745	888,094	189,573	846,310	.....	.....
1904.....	275,927	805,022	257,172	1,148,090	20,984	78,936

The coke production of the North-west Territories, which has been insignificant until this year. is now becoming quite important. The largest contributor is the International Coal and Coke Company of Coleman, who have a battery of 86 beehive coke ovens.

The West Canadian Colliery Company have 28 coke ovens in operation; these are of the Bernard type and the gas is used under the boilers. They are the only ovens of the by-product type worked in the West.

In British Columbia, we note a very large increase in the coke production, for which the Crows Nest Pass Coal Co is mainly responsible.

As remarked by the Provincial Mineralogist in his report for 1904, the consumption of coke by the British Columbia smelters has remained



## SESSIONAL PAPER No. 26a

about the same as in 1903, but the export has increased chiefly owing COKE. to the opening up of markets in Montana through the completion of the branch of the Great Northern Railway. The ovens of the Crows Nest Pass Coal Company have not been run at their full capacity, so that the limit of the present market seems to have been reached, but there is every indication that it will be held during the coming year.

TABLE 3.

## COKE.

## EXPORTS OF COKE.

Calendar Year.	Tons.	Value.
		\$
1897 .....	2,987	6,078
1898 .....	3,774	8,394
1899 .....	5,557	18,726
1900 .....	41,529	131,278
1901 .....	57,505	176,990
1902 .....	62,568	180,920
1903 .....	32,608	135,957
1904 .....	102,463	345,031

TABLE 4.

## COKE.

## IMPORTS OF OVEN COKE.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
		\$			\$
1880 .....	3,837	19,353	1893 .....	41,821	156,277
1881 .....	5,492	26,123	1894 .....	42,864	176,996
1882 .....	8,157	36,670	1895 .....	43,235	149,434
1883 .....	8,943	38,588	1896 .....	61,612	203,826
1884 .....	11,207	44,518	1897 .....	83,330	267,540
1885 .....	11,564	41,391	1898 .....	135,060	347,040
1886 .....	11,858	39,756	1899 .....	141,284	362,826
1887 .....	15,110	56,222	1900 .....	187,878	506,839
1888 .....	25,487	102,334	1901 .....	308,786	680,138
1889 .....	29,557	91,902	1902 .....	267,142	842,815
1890 .....	36,564	133,344	1903 .....	256,723	1,222,756
1891 .....	38,533	177,605	1904.. Duty free.	221,050	765,123
1892 .....	43,499	194,429			



CHROMITE.

CHROMITE.

There was a considerable increase in the production of chromite in comparison with 1903. The returns for 1904 total up to more than \$67,000, which is the largest production yet recorded and is an increase of \$16,000 over 1903, and of more than \$54,000 over 1902.

This mineral is mined in the Eastern Townships of Quebec, with Coleraine township as centre, the points of shipment being Black Lake, D'Israeli and Broughton on the Quebec Central Railway, The ore is graded according to its contents of sesquioxide of chromium ; the first class averaging 52%. As mined it contains about 40% and has to be concentrated.

The chief market is in the United States, where it is used for the manufacture of ferro-chrome and bi-chromates, while the low grades are employed as furnace lining. The exports to this country amount to about 80 per cent of the Canadian production. The balance is mainly used by the Electric Reduction Company of Buckingham, Canada, and small quantities are also shipped to France and Holland.

TABLE 1.

CHROMITE.

ANNUAL PRODUCTION.

Calendar Year.	Tons. (2,000 lbs.)	Average price per ton.	Value.
		\$ cts	\$
1886.....	* 60	15 75	945
1887.....	38	15 00	570
1888 to 1893.....	no output		
1894.....	1,000	20 00	20,000
1895.....	3,177	13 00	41,300
1896.....	2,342	11 53	27,004
1897.....	2,637	12 31	32,474
1898.....	*2,021	12 00	24,252
1899.....	2,010	10 86	21,842
1900.....	2,335	11 56	27,000
1901.....	1,274	13 14	16,744
1902.....	900	14 44	13,000
1903.....	3,509	14 57	51,129
1904.....	6,074	11 05	67,146

\* Railway shipments.



SESSIONAL PAPER No. 26a

TABLE 2.

CHROMITE

CHROMITE.

EXPORTS.

Calendar Year.	Tons.	Value.
1895 .....	2,908	\$ 12,236
1896 ..... ..	2,466	31,411
1897 . . . . .	2,106	26,254
1898 .... ..	1,683	20,783
1899 ..... ..	1,509	19,876
1900 ..... ..	368	8,259
1901 ..... ..	2,259	25,444
1902 ..... ..	740	7,535
1903 ..... ..	1,013	20,524
1904 ..... ..	3,338	60,336

## GRAPHITE.

Returns from graphite producers show that this mineral was GRAPHITE. worked in Ontario, Quebec and New Brunswick, the relative importance of each province being in the order named.

The greater proportion of the Canadian graphite production comes from the Black Donald mine in the county of Renfrew, Ontario.

Returns of output have been received from the Anglo-Canadian Graphite Company, Ltd., of Birmingham, England. This company acquired the mine and mills of the North American Graphite Company in Buckingham township.

The total Canadian production, however, only reached \$11,760, which is a considerable decrease compared with the previous year.

Table 1 shows the annual production since 1886, tables 2 and 3 give the exports and imports of graphite.



GRAPHITE.

TABLE 1.

GRAPHITE.

ANNUAL PRODUCTION.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
1886.....	500	\$4,000	1896.....	139	9,455
1887.....	300	2,400	1897.....	436	16,240
1888.....	150	1,200	1898.....	.....	13,698
1889.....	242	3,160	1899.....	1,130	24,179
1890.....	175	5,200	1900.....	1,922	31,040
1891.....	260	1,560	1901.....	2,210	38,780
1892.....	167	3,763	1902.....	1,095	28,300
1893.....	nil.	nil.	1903.....	728	23,745
1894*.....	3	223	1904.....	452	11,760
1895.....	220	\$ 6,150			

\* Exports.

TABLE 2.

GRAPHITE.

EXPORTS.

Calendar Year.	Value.	Calendar Year.	Value.
1886.....	\$ 3,586	1895.....	\$ 4,833
1887.....	3,017	1896.....	9,480
1888.....	1,080	1897.....	4,325
1889.....	538	1898.....	13,098
1890.....	1,529	1899.....	22,490
1891.....	72	1900.....	46,197
1892.....	3,952	1901.....	35,102
1893.....	38	1902.....	24,839
1894.....	223	1903.....	43,642
1904 { Crude.....		Cwt.	\$ 9,609
{ Manufactures of.....		3,542	6,958
			\$16,567



SESSIONAL PAPER No. 26a

TABLE 3.

GRAPHITE.

GRAPHITE.

## IMPORTS OF RAW AND MANUFACTURED GRAPHITE

Fiscal Year.	Plumbago.	Manufactures of plumbago.	
		Black-lead.	Other Manufactures.
1880.....	\$1,677	\$18,055	\$2,738
1881.....	2,479	26,544	1,202
1882.....	1,028	25,132	2,181
1883.....	3,147	21,151	2,141
1884.....	2,891	24,002	2,152
1885.....	3,729	24,487	2,805
1886.....	5,522	23,211	1,408
1887.....	4,020	25,766	2,830
1888.....	3,802	7,824	22,604
1889.....	3,546	11,852	21,789
1890.....	3,441	10,276	26,605
1891.....	7,217	8,292	26,201
1892.....	2,988	13,560	23,085
1893.....	3,293	16,595	23,051
1894.....	2,177	17,614	16,686
1895.....	2,586	13,922	21,988
1896.....	2,865	18,434	19,497
1897.....	1,406	17,863	20,674
1898.....	1,862	19,638	32,653
1899.....	4,979	21,334	36,490
1900.....	4,437	22,078	38,440
1901.....	2,357	25,646	49,890
1902.....	3,649	20,467	43,656
1903.....	2,870	22,559	47,117
1904	Duty.		
	Plumbago, not ground, &c. 10 p.c.	\$1,802	
	Black-lead..... 25 "		\$26,053
	Plumbago, ground and manufactures of N.E.S. 25 "		\$12,737
	Crucibles, clay or plumbago.....		28,773
Total, 1904.....		\$1,802	\$26,053
			\$41,510

## GYPSUM.

For the last few years the production of gypsum has been very GYPSUM. steady, showing little fluctuation. In 1904 it amounted to 345,961 tons, representing a value of \$373,474. This is an increase in quantity but a decrease in the total value as compared with the previous year. The average value per ton for 1904 is \$1.08.



GYP SUM.

TABLE 1.  
GYP SUM.  
ANNUAL PRODUCTION.

Calendar Year.	Tons.	Value.	Average price per ton.
1886.....	162,000	\$178,742	\$ 1.10
1887.....	154,008	157,277	1.02
1888.....	175,887	179,393	1.01
1889.....	213,273	205,108	0.96
1890.....	226,509	194,033	0.86
1891.....	203,605	206,251	1.01
1892.....	241,048	241,127	1.00
1893.....	192,568	196,150	1.02
1894.....	223,631	202,031	0.90
1895.....	226,178	202,608	0.89
1896.....	207,032	178,061	0.86
1897.....	239,691	244,531	1.02
1898.....	219,256	232,515	1.06
1899.....	244,566	257,329	1.05
1900.....	252,101	259,009	1.02
1901.....	293,799	340,148	1.16
1902.....	333,599	379,479	1.14
1903.....	314,489	388,459	1.24
1904 Crude gypsum.....	322,450	245,686	.76
Ground gypsum.....	5,068	13,155	2.60
Plaster of Paris and wall plaster.....	18,443	114,633	6.21
Total.....	345,961	373,474	1.08

As usual the largest production, as to tonnage, is assigned to Nova-Scotia; this amounted to 218,580 tons, of a value of \$153,600. In quantity New Brunswick follows with a tonnage of 120,991, but as a greater proportion of this is calcined to plaster of Paris the value is greater than that of the Nova Scotia production; it is valued at \$187,524. Both of these provinces possess practically inexhaustible quantities of gypsum in the immense deposits of lower carboniferous age, and the supply is only limited by the demand. In Ontario small quantities of gypsum are obtained from the deposits along the Grand river, which belong to the Onondaga formation. In 1904 the tonnage was 2,390, valued at \$18,350. It is utilized for the most part in the manufacture of wall-plaster and other materials such as kalsomine, etc., hence its comparatively high value per ton. The same remark applies to Manitoba where gypsum has been quarried for a few years past.



SESSIONAL PAPER No. 26a

TABLE 2.

GYPSUM.

GYPSUM.

ANNUAL PRODUCTION BY PROVINCES.

CALENDAR YEAR.	NOVA SCOTIA.		NEW BRUNSWICK.		ONTARIO.		MANITOBA.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$		\$
1887... ..	116,346	116,346	29,102	29,216	8,560	11,715		
1888... ..	124,818	120,429	44,369	48,764	6,700	10,200		
1889.....	165,025	142,850	40,866	49,130	7,382	13,128		
1890.....	181,285	154,972	39,024	30,986	6,200	8,075		
1891.....	161,934	153,955	36,011	33,996	5,660	18,300		
1892... ..	197,019	170,021	39,709	65,707	4,320	5,399		
1893.....	152,754	144,111	36,916	41,846	2,898	10,193		
1894.....	168,300	147,644	52,962	48,200	2,369	6,187		
1895... ..	156,809	133,929	66,949	63,839	2,420	4,840		
1896... ..	136,590	111,251	67,137	59,024	3,305	7,786		
1897.....	155,572	121,754	82,658	118,116	1,461	4,661		
1898.....	132,086	106,610	86,083	121,704	1,087	4,201		
1899.....	126,754	102,055	116,792	151,296	1,020	3,978		
1900.....	138,712	108,828	112,294	145,850	1,095	4,331		
1901.....	170,100	136,947	121,595	189,709	1,504	5,692	600	7,800
1902... ..	206,987	181,425	124,041	170,153	1,917	7,699	1,554	20,202
1903	189,427	173,881	119,182	172,080	2,720	21,988	3,160	20,510
1904.....	218,580	153,600	190,991	187,524	2,390	18,350	4,000	14,000

The greater part of the Canadian production of gypsum is exported to the United States in the crude state. In 1904 out of a production of 345,961 tons the exports of crude amounted to 298,211 tons, practically all from Nova Scotia and New Brunswick.



GYP SUM.

TABLE 3.  
GYP SUM.  
EXPORTS OF CRUDE GYP SUM.

Calen- dar Year.	NOVA SCOTIA.		NEW BRUNSWICK.		ONTARIO.		TOTAL.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.	Tons.	Value.
		\$		\$		\$		\$
1874	67,830	68,164					67,830	68,164
1875	86,065	86,193	5,420	5,420			91,485	91,613
1876	87,720	87,590	4,925	6,616	120	180	92,765	94,386
1877	106,950	93,867	5,030	5,030			111,980	98,897
1878	88,631	76,695	16,335	16,435	489	675	105,455	93,865
1879	95,623	71,353	8,791	8,791	579	720	104,993	80,864
1880	125,685	111,833	10,375	10,987	875	1,240	136,935	124,060
1881	110,303	100,284	10,310	15,025	657	1,040	121,270	116,349
1882	133,426	121,070	15,597	24,581	1,249	1,946	150,272	147,597
1883	145,448	132,834	20,242	35,557	462	837	166,152	169,228
1884	107,653	100,446	21,800	32,751	688	1,254	130,141	134,451
1885	81,887	77,898	15,140	27,730	525	787	97,552	106,415
1886	118,985	114,116	23,498	40,559	350	538	142,833	155,213
1887	112,557	106,910	19,942	39,295	225	337	132,724	146,542
1888	124,818	120,429	20	50	670	910	125,508	121,389
1889	146,204	142,850	31,495	50,862	483	692	178,182	194,404
1890	145,452	139,707	30,034	52,291	205	256	175,691	192,254
1891	143,770	140,438	27,536	41,350	5	7	171,311	181,795
1892	162,372	157,463	27,488	43,623			189,860	201,086
1893	132,131	122,556	30,061	36,706			162,192	159,262
1894	119,569	111,586	40,843	46,538			160,412	158,124
1895	133,369	125,651	56,117	67,593			189,486	193,244
1896	116,331	109,054	64,946	77,535			181,277	186,589
1897	122,984	116,665	66,222	80,485			189,206	197,150
1898	99,215	93,474	70,399	81,433			169,614	174,907
1899	104,795	99,984	96,831	108,094	*1	12	201,626	208,090
1900							188,262	201,912
1901							236,247	231,594
1902							289,600	295,215
1903							287,496	311,580
1904							298,211	316,436

\*Exported from British Columbia.

TABLE 4.  
GYP SUM.  
EXPORTS OF GROUND GYP SUM.

Calendar Year.	Nova Scotia.	New Brunswick.	Ontario.	Total.
	\$	\$	\$	\$
1890				105
1891				588
1892				20,255
1893				22,132
1894	2,124	17,930		20,054
1895	3,364	18,827	42	22,233
1896	1,270	19,246	751	21,267
1897	1,655	5,024	84	6,763
1898	1,548	4,900		6,448
1899	205	7,898	20	8,123
1900				19,834
1901				15,337
1902				5,101
1903				12,457
1904				2,333



TABLE 5.

GYP SUM.

GYP SUM.

IMPORTS OF GYPSUM, ETC.

Fiscal Year.	Crude Gypsum.		Ground Gypsum.		Plaster of Paris.	
	Tons.	Value.	Pounds.	Value.	Pounds.	Value.
1880. . . . .	1,854	\$3,203	1,606,578	\$ 5,948	667,676	\$ 2,376
1881. . . . .	1,731	3,442	1,544,714	4,676	574,006	2,864
1882. . . . .	2,132	3,761	759,460	2,576	751,147	4,184
1883. . . . .	1,384	3,001	1,017,905	2,579	1,448,650	7,867
1884. . . . .		3,416	687,432	1,936	782,920	5,226
1885. . . . .	1,353	2,354	461,400	1,177	689,521	4,809
1886. . . . .	1,870	2,429	224,119	675	820,273	5,463
1887. . . . .	1,557	2,492	13,266	73	594,146	4,342
1888. . . . .	1,236	2,193	106,068	558	942,338	6,662
1889. . . . .	1,360	2,472	74,390	372	1,173,996	8,513
1890. . . . .	1,050	1,928	434,400	2,136	693,435	6,004
1891. . . . .	376	640	36,500	215	1,035,605	8,412
1892. . . . .	626	1,182	310,250	2,149	1,166,200	5,595
1893. . . . .	496	1,014	140,830	442	552,130	3,143
1894. . . . .		1,660	23,270	198	422,700	2,386
1895. . . . .	603	960	20,700	88	259,200	1,619
1896. . . . .	1,045	848	64,500	198	297,000	2,000
1897. . . . .		772	45,000	123	969,900	4,489
1898. . . . .	1,147	1,742	35,700	293	329,600	2,025
1899. . . . .	325	692	33,900	338	496,300	3,120
1900. . . . .	77	958	6,300	69	849,100	6,492
1901. . . . .	286	1,125	65,400	1,097	502,200	3,978
1902. . . . .	541	1,697	56,700	249	475,300	2,641
1903. . . . .	1,076	2,187	68,700	228	630,800	3,599
1904. . . . .	249	663	*106,800	559	625,100	2,885

\*Equivalent to 356 barrels.  
Crude gypsum, duty free. Ground gypsum, duty 15%. Plaster of Paris, duty 12½c. per 100 lbs.



MANGANESE.

MANGANESE.      The Canadian manganese industry has not assumed any important proportions this year. As a whole the production is very irregular. The returns for 1904 show that the output did not exceed 66 tons, having a value of \$2,740, which gives an average of \$41.51 per ton. The total production was obtained from Nova Scotia.

TABLE 1.  
MANGANESE.  
ANNUAL PRODUCTION.

Calendar Year.	Tons.	Value.	Value per ton.
1886.....	1,789	\$41,499	\$23.20
1887.....	1,245	43,658	35.07
1888.....	1,801	47,944	26.62
1889.....	1,455	32,737	22.50
1890.....	1,328	32,550	24.51
1891.....	255	6,694	26.25
1892.....	115	10,250	89.13
1893.....	213	14,578	68.44
1894.....	74	4,180	56.49
1895.....	125	8,464	67.71
1896*.....	123½	3,975	32.19
1897*.....	15¼	1,166	76.46
1898.....	50	1,600	32.00
1899.....	1,581	20,004	12.65
1900.....	30	1,800	60.00
1901*.....	440	4,820	10.95
1902*.....	172	4,062	23.62
1903.....	91	2,775	30.49
1904.....	66	2,740	41.51

\* Exports.

Tables 2 and 3 which follow, give figures relating to the Canadian manganese trade, table 2 gives figures of exports, and table 3, the figures of imports.



TABLE 2.  
MANGANESE.  
EXPORT OF MANGANESE ORE.

CALENDAR YEAR.	NOVA SCOTIA.		NEW BRUNSWICK.		TOTAL.	
	Tons.	Value.	Tons.	Value.	Tons.	Value.
1873.....			1,031	\$20,192	1,031	\$20,192
1874. ....	6	\$ 12	776	16,961	782	16,973
1875.....		200	194	5,314	203	5,514
1876.....	21	723	391	7,316	412	8,039
1877.....	106	3,699	785	12,210	891	15,909
1878.....	106	4,889	520	5,971	626	10,860
1879.....	154	7,420	1,732	20,016	1,886	27,436
1880.....	79	3,090	2,100	31,707	2,179	34,797
1881.....	200	18,022	1,504	22,532	1,704	40,554
1882. ....	123	11,520	771	14,227	894	25,747
1883.....	313	8,635	1,013	16,708	1,326	25,343
1884.....	134	11,054	469	9,035	603	20,089
1885.....	77	5,054	1,607	29,595	1,684	34,649
1886.....	(a) 441	30,854	1,377	27,484	(a) 1,818	58,338
1887. ....	578	14,240	837	20,562	1,415	34,802
1888.....	87	5,759	1,094	16,073	1,181	21,832
1889.....	59	3,024	1,377	26,326	1,436	29,350
1890.....	177	2,583	1,729	34,248	1,906	36,831
1891.....	22	563	233	6,131	255	6,694
1892. ....	84	6,180	59	2,025	143	8,205
1893.....	123	12,409	10	112	133	12,521
1894.....	11	720	45	2,400	56	3,120
1895.....	108	6,348	<sup>3</sup> / <sub>16</sub>	3	108 <sup>3</sup> / <sub>16</sub>	6,351
1896.....	123 <sup>1</sup> / <sub>4</sub>	3,975			123 <sup>1</sup> / <sub>4</sub>	3,975
1897. ....	15 <sup>1</sup> / <sub>4</sub>	1,166			15 <sup>1</sup> / <sub>4</sub>	1,166
1898.....	11	325			11	325
1899.....	67	2,328	3	82	70	2,410
1900.....					34	1,720
1901.....					440	4,820
1902.. ....					172	4,062
1903.....					135	1,889
1904.. ....					123	2,706

(a) 250 tons from Cornwallis should more correctly be classed under the heading of mineral pigments.

TABLE 3.  
MANGANESE.  
IMPORTS : OXIDE OF MANGANESE.

Fiscal Year.	Pounds.	Value.	Fiscal Year.	Pounds.	Value.
1884.....	3,989	\$ 258	1895.....	64,151	\$2,781
1885.....	36,778	1,794	1896. ....	108,590	4,075
1886.....	44,967	1,753	1897.....	70,663	2,741
1887.....	59,655	2,933	1898.....	130,456	5,047
1888.....	65,014	3,022	1899.....	141,356	5,539
1889.....	52,241	2,182	1900.....	126,725	4,155
1890.....	67,452	3,192	1901.....	272,134	8,176
1891.....	92,087	3,743	1902.....	476,331	5,360
1892.....	76,097	3,530	1903.....	279,611	8,051
1893.....	94,116	3,696	1904 Duty free...	275,696	7,051
1894.....	101,863	4,522			



## MICA.

## MICA.

The figures of production of mica for the year 1904 are below those of the previous year as to the value. This is probably due to the greater use of micanite, which seems to be employed in place of the whole mica sheets in many cases. This micanite consists of thin leaves of mica cemented together and pressed. Small pieces of mica are used in the manufacture of large sheets of micanite, which of course makes a much cheaper product than large sheets of split mica.

Both provinces, Quebec and Ontario, contributed to the production, the former being responsible for about two-thirds of the total.

The greater part of the Canadian production is exported to the United States, as will be seen by glancing at the following tables which give the status of the mica industry for several years back.

TABLE 1.

## MICA.

## ANNUAL PRODUCTION.

Calendar Year.	Value.	Calendar Year.	Value.
1886. . . . .	\$ 29,008	1896. . . . .	\$60,000
1887. . . . .	29,816	1897. . . . .	76,000
1888. . . . .	30,207	1898. . . . .	118,375
1889. . . . .	28,718	1899. . . . .	163,000
1890. . . . .	68,074	1900. . . . .	166,000
1891. . . . .	71,510	1901. . . . .	160,000
1892. . . . .	104,745	1902. . . . .	135,904
1893. . . . .	75,719	1903. . . . .	177,857
1894. . . . .	45,581	1904. . . . .	160,777
1895. . . . .	65,000		

TABLE 2.

## MICA.

## EXPORTS.

Calendar Year.	Value.	Calendar Year.	Value.
1887. . . . .	\$ 3,480	1896. . . . .	\$47,756
1888. . . . .	23,563	1897. . . . .	69,101
1889. . . . .	30,597	1898. . . . .	110,507
1890. . . . .	22,468	1899. . . . .	153,002
1891. . . . .	37,590	1900. . . . .	146,750
1892. . . . .	86,562	1901. . . . .	152,553
1893. . . . .	70,081	1902. . . . .	(a) 391,812
1894. . . . .	38,971	1903. . . . .	196,020
1895. . . . .	48,525	1904. . . . .	198,482

(a) Probably includes some material manufactured from mica.



TABLE 3.  
MICA.

\*IMPORTS OF MICA INTO THE UNITED STATES FROM CANADA. YEARS ENDING JUNE 30.

Fiscal Year.	Pounds.	Value.
1895.....	546,905	\$ 39,637
1896.....	570,750	53,719
1897.....	404,080	53,399
1898.....	465,779	53,854
1899.....	1,024,098	131,310
1900.....	1,097,067	136,981
1901.....	967,904	161,741
1902.....	854,167	184,287
1903.....	834,035	196,456
1904.....	573,035	137,191

\* The Foreign Commerce and Navigation of the United States.

MINERAL WATERS.

As has been stated in our previous reports the following figures of MINERAL production of mineral waters must be taken more or less as approxi- WATERS. mations. At a number of places in Canada where mineral springs occur, the water is being used for drinking or bathing, and often bottled and sold more or less regularly. Moreover at several points hotels have been erected near springs the waters of which have cura- tive properties. It is therefore very difficult to obtain returns which would enable us to present accurate statistics of the industry.

TABLE 1.  
MINERAL WATERS.  
ANNUAL PRODUCTION.

Calendar Year.	Gallons.	Value.	Calendar Year.	Gallons.	Value.
1888.....	124,850	\$ 11,456	1897.....	749,691	\$141,477
1889.....	424,600	37,360	1898.....	555,000	100,000
1890.....	561,165	66,031	1899.....		100,000
1891.....	427,485	54,268	1900.....		75,000
1892.....	640,380	75,348	1901.....		100,000
1893.....	725,096	108,347	1902.....		100,000
1894.....	767,460	110,040	1903.....		100,000
1895.....	739,382	126,048	1904.....		100,000
1896.....	706,372	111,736			



MINERAL  
WATERS.

TABLE 2.  
MINERAL WATERS.  
IMPORTS.

Fiscal Year.		Value.
1880.....		\$41,797
1881.....		55,763
1882.....		57,953
1883.....		49,546
1884.....		48,613
1885.....		55,864
1886.....		47,006
1887.....		52,989
1888.....		54,891
1889.....		66,331
1890.....		71,521
1891.....		15,721
1892.....		17,913
1893.....		27,909
1894.....		28,130
1895.....		27,879
1896.....		32,674
1897.....		22,142
1898.....		33,314
1899.....		38,046
1900.....		30,343
1901.....		40,802
1902.....		91,871
1903.....		108,130
1904 ( Mineral waters, natural, not in bottle.....D. ty free..		\$ 721
Mineral and aerated waters..... @ 20 p.c.		136,583
Total.....		\$137,304

NATURAL GAS.

NATURAL  
GAS.

The total value of the natural gas production in Canada in 1904 shows a very large increase over the previous years. From \$202,210 in 1903, it rose to \$328,376 in 1904 and Ontario is almost wholly responsible for the difference. The main field in Ontario is that of Welland county, and the largest producers are the Provincial Natural Gas and Fuel Company. This company has, this year, extended their distributing pipe line to the town of Niagara Falls, Ont., and to Chippawa, an adjoining village.

A new field has been opened in the county of Haldimand. The company operating in it intend to eventually supply natural gas to Hamilton.



## SESSIONAL PAPER No. 26a

According to the report of the Ontario Bureau of Mines there were <sup>NATURAL GAS.</sup> 176 gas wells producing at the close of the year of which, 36 had been bored in 1904, the gas production being distributed through 231 miles of pipe.

Outside of Ontario the only returns of natural gas which were received were from Medicine Hat, in Assiniboia, where the town is operating a municipal natural gas plant.

The Canadian Pacific Railway are at present putting down some wells at the same place, but they are not producing yet.

TABLE 1.  
NATURAL GAS.  
ANNUAL PRODUCTION.

Calendar Year.	Value.
1892.....	\$ 150,000
1893.....	376,233
1894.....	313,754
1895.....	423,032
1896.....	276,301
1897.....	325,873
1898.....	322,123
1899.....	387,271
1900.....	417,094
1901.....	339,476
1902.....	195,992
1903.....	202,210
1904.....	328,376

## MINERAL PIGMENTS.

Under this heading are included ochres and barytes only. Other <sup>MINERAL PIGMENTS.</sup> Canadian minerals are probably used in the manufacture of paints, but they are not recorded.

Mr. C. W. Willimott of this department has just concluded a long series of experiments on the Canadian minerals which can be used as mineral pigments, and the result will be published shortly in the form of a bulletin.

*Ochres.*—The output of ochre has been mainly derived from the deposits which are near Three Rivers, Champlain county, Quebec. The returns received show a production of 3,925 tons, valued at \$24,995. This is a decrease as compared with the output for 1903.



MINERAL  
PIGMENTS.

We give below a list of the firms engaged in this production :—

Canada Paint Company, 572 William St., Montreal, Que.

Champlain Oxide Company, Three Rivers, Que.

Thos. H. Argall, Three Rivers, Que.

Ontario Mineral Paint Works, Campbellville, Ont.

TABLE 1.

MINERAL PIGMENTS.

ANNUAL PRODUCTION OF OCHRES.

Calendar Year.	Tons.	Value.
1886. ....	350	2,350
1887. ....	485	3,733
1888. ....	397	7,900
1889. ....	794	15,280
1890. ....	275	5,125
1891. ....	900	17,750
1892. ....	390	5,800
1893. ....	1,070	17,710
1894. ....	611	8,690
1895. ....	1,339	14,600
1896. ....	2,362	16,045
1897. ....	3,905	23,560
1898. ....	2,226	17,450
1899. ....	3,919	20,000
1900. ....	1,966	15,398
1901. ....	2,233	16,735
1902. ....	4,955	30,495
1903. ....	6,266	32,760
1904. ....	3,925	24,995



TABLE 2.  
MINERAL PIGMENTS.  
IMPORTS OF OCHRES.

MINERAL  
PIGMENTS.

Fiscal Year.		Pounds.	Value.	
1880.....		571,454	\$ 6,544	
1881.....		677,115	8,972	
1882.....		731,526	8,202	
1883.....		898,376	10,375	
1884.....		533,416	6,398	
1885.....		1,119,177	12,782	
1886.....		1,100,243	12,267	
1887.....		1,460,128	17,067	
1888.....		1,725,460	17,664	
1889.....		1,342,783	12,994	
1890.....		1,394,811	14,066	
1891.....		1,528,696	20,550	
1892.....		1,708,645	22,908	
1893.....		1,968,645	23,134	
1894.....		1,358,326	18,951	
1895.....		793,258	12,048	
1896.....		1,159,494	16,954	
1897.....		1,504,044	18,504	
1898.....		2,126,592	26,307	
1899.....		2,444,698	31,092	
1900.....		2,474,537	32,017	
1901.....		2,092,067	27,267	
1902.....		2,530,743	33,909	
1903.....		3,215,346	42,243	
1904 {	Ochres and ochrey earths and raw siennas.....	Duty. 20 p. c.	1,163,939	\$ 13,303
	Oxides, dry fillers, fire-proofs umbers and burnt siennas N.E.S.....	25 "	1,603,641	23,333
	Total, 1904.....		2,767,580	\$36,636

TABLE 3.  
MINERAL PIGMENTS.  
EXPORTS OF MINERAL PIGMENTS, IRON OXIDES, ETC.

Calendar Year.	Tons.	Value.
1897.. . . . .	512	\$7,706
1898. . . . .	283	4,227
1899. . . . .	308	5,408
1900. . . . .	651	7,154
1901 . . . . .	401	8,233
1902. . . . .	352	6,182
1903. . . . .	676	12,770
1904. . . . .	416	7,260



MINERAL  
PIGMENTS.

*Barytes.*—The output of barytes amounted to 1,382 tons, valued at \$3,702. Nova Scotia and Quebec are the only provinces from which returns are made. In the first named province deposits are worked at Cape Rouge, Inverness county, while in Quebec, the main deposits are in Hull township, Wright county. The output is practically all used in the manufacture of paint.

TABLE 4.  
MINERAL PIGMENTS.  
ANNUAL PRODUCTION OF BARYTES.

Calendar Year.	Tons.	Value.
1885.....	300	\$ 1,500
1886.....	3,864	19,270
1887.....	400	2,400
1888.....	1,100	3,850
1889.....		
1890.....	1,842	7,543
1891.....		
1892.....	315	1,260
1893.....		
1894.....	1,081	2,830
1895.....		
1896.....	145	715
1897.....	571	3,060
1898.....	1,125	5,533
1899.....	720	4,402
1900.....	1,337	7,605
1901.....	653	3,842
1902.....	1,096	3,957
1903.....	1,163	3,931
1904.....	1,382	3,702

TABLE 5.  
MINERAL PIGMENTS.  
IMPORTS OF BARYTES.

Fiscal Year.	Cwt.	Value.
1880.....	2,230	\$ 1,525
1881.....	3,740	1,011
1882.....	497	303
1883.....		185
1884.....		229
1885.....	7	14
1886.....		62
1887.....	379	676
1888.....	236	214
1889.....	1,332	987
1890.....	1,322	978



TABLE 6.  
MINERAL PIGMENTS.

MINERAL  
PIGMENTS.

MISCELLANEOUS IMPORTS, FISCAL YEAR, 1904.

	Duty.	Quantity.	Value.
Paint, ground or mixed in, or with either japan, varnish, lacquers, liquid dryers, collodion, oil finish or oil varnish..... Lbs.	25 p. c.	51,379	3,623
Paints and colours, rough stuff and fillers, anti-corrosive and anti-fouling paints commonly used for ship hulls, N.E.S..... "	25 "	981,714	40,397
Paris green, dry..... "	10 "	279,770	36,524
Paints and colours ground in spirits, and all spirit varnishes and lacquers ..... Galls.	\$1.12½ per gallon ..	796	2,683
Putty..... Lbs.	20 p. c.	265,871	3,942
Total .....			87,169

PETROLEUM.

Ontario is as yet the only Province in Canada to be credited with PETROLEUM. an output of petroleum. The Canadian production is altogether derived from the oil pools of the south-western part of the Ontario peninsula, of which the Petrolia oil field is the most important.

In Manitoulin Island several holes were drilled during the year, and in the West a great deal of work has been done in south-west Alberta, but authentic reports of the operations are not yet available.

The details of production for the past four years are as follows :—

Crude Oil.	1901.	1902.	1903.	1904.
	Bbls.	Bbls.	Bbls.	Bbls.
Received at refineries .....	508,677	443,333	410,280	455,074
Direct sales for industrial purposes	113,715	87,291	76,357	48,400
Total sales of crude oil.. ..	622,392	530,624	486,637	503,474
" in gallons.....	21,783,720	18,571,840	17,032,295	17,621,590



PETROLEUM.

TABLE 1.

PETROLEUM.

CANADIAN OILS AND NAPHTHA INSPECTED AND CORRESPONDING QUANTITIES OF CRUDE OIL.

Calendar Year.	Refined Oils Inspected.	Crude Equivalent Calculated.	Ratio of Crude to Refined.	Equivalent in Barrels of 35 Gallons	Average Price per Barrel of Crude.	Value of Crude Oil.
	Gallons.	Gallons.				
1881.....	6,457,270	12,914,540	100:50	368,987	.....	.....
1882. ....	6,135,782	13,635,071	100:45	389,573	.....	.....
1883. ....	7,447,648	16,550,328	100:45	472,866	.....	.....
1884.....	7,993,995	19,984,987	100:40	571,000	.....	.....
1885.....	8,225,882	20,564,705	100:40	587,563	.....	.....
1886.....	7,768,006	20,442,121	100:38	584,061	\$0 90	\$525,655
1887.....	9,492,588	24,980,494	100:38	713,728	0 78	556,708
1888.....	9,246,176	24,332,042	100:38	695,203	1 02	713,695
1889...	9,472,476	24,664,144	100:38	704,690	0 92	653,600
1890.. . .	10,174,894	26,776,037	100:38	795,030	1 18	902,734
1891. . . .	10,065,463	26,435,430	100:38	755,298	1 33	1,010,211
1892. . . .	10,370,707	27,291,334	100:38	779,753	1 26	984,438
1893.....	10,618,804	27,944,221	100:38	798,406	1 09	874,255
1894. . . .	11,027,982	29,018,637	100:38	829,104	1 00	835,322
1895. . . .	10,674,232	25,414,838	100:42	726,138	1 49	1,086,738
1896.....	10,684,284	25,438,771	100:42	726,822	1 59	1,155,647
1897.....	10,434,878	24,844,995	100:42	709,857	1 42	1,011,546
1898.. . .	11,148,348	26,543,685	100:42	758,391	1 40	1,061,747
1899.....	11,927,981	28,399,955	100:42	808,570	1 48	1,202,020
1900.....	13,428,422	24,867,449	100:54	710,498	1 62	1,151,007

TABLE 2.

PETROLEUM.

VALUE OF THE PRODUCTION OF CANADIAN OIL REFINERIES.

Calendar Year.	Value.	Calendar Year.	Value.
1887.....	\$1,288,109	1896.....	1,876,913
1888. ....	1,401,459	1897.....	1,672,429
1889.....	1,414,184	1898....	1,825,265
1890.....	1,638,420	1899.....	1,490,870
1891.. . .	1,534,509	1900.....	1,620,705
1892.. . .	1,782,365	1901.....	1,251,373
1893.. . .	1,675,784	1902.....	1,222,641
1894.. . .	1,567,134	1903.....	1,302,104
1895.. . .	1,806,237	1904.....	975,840



TABLE 3.  
PETROLEUM.  
TOTAL AMOUNT OF OIL INSPECTED, CANADIAN AND IMPORTED.

Fiscal Year	Canadian.	Imported.	Total.	Canadian.	Imported.
	Gallons.	Gallons.	Gallons.	Per cent.	Per cent.
1881.....	6,406,783	476,784	6,883,567	93 1	6 9
1882.....	5,910,747	1,351,412	7,262,159	81 4	18 6
1883.....	6,970,550	1,190,828	8,161,378	85 4	14 6
1884.....	7,656,001	1,142,575	8,798,586	87 0	13 0
1885.....	7,661,617	1,278,115	8,939,732	85 7	14 3
1886.....	8,149,472	1,327,616	9,477,088	86 0	14 0
1887.....	8,243,962	1,665,604	9,909,566	83 2	16 8
1888.....	9,545,895	1,821,342	11,367,237	84 0	16 0
1889.....	9,462,834	1,767,812	11,230,646	84 3	15 7
1890.....	10,121,210	2,020,742	12,141,952	83 4	16 6
1891.....	10,270,107	2,022,002	12,292,109	83 6	16 4
1892.....	10,238,426	2,423,445	12,667,871	80 8	19 2
1893.....	10,683,806	2,641,690	13,325,496	80 2	19 8
1894.....	10,824,270	5,633,222	16,457,492	65 8	34 2
1895.....	10,936,992	5,650,994	16,587,986	65 9	34 1
1896.....	10,533,951	5,807,991	16,341,942	64 5	35 5
1897.....	10,506,526	6,248,743	16,755,269	62 7	37 3
1898.....	10,796,847	6,880,734	17,677,581	61 1	38 9
1899.....	11,005,804	7,232,348	18,238,152	60 3	39 7
1900.....	13,014,713	*8,216,207	21,230,920	61 3	38 7
1901.....	12,674,977	*9,232,165	21,907,142	57 9	42 1
1902.....	10,494,874	*10,916,396	21,411,270	49 0	51 0
1903.....	8,615,892	*14,479,176	23,095,068	37 3	62 7
1904.....	7,292,113	*17,369,930	24,662,043	29 6	70 4

\* Item (a) Table 5.

TABLE 4.  
PETROLEUM.  
EXPORTS OF CRUDE AND REFINED PETROLEUM.

Calendar Year.	Crude Oil.		Refined Oil.		Total.	
	Gallons.	Value.	Gallons.	Value.	Gallons.	Value.
1881					501	\$ 99
1882					1,119	286
1883					13,283	710
1884					1,098,090	30,168
1885					337,967	10,562
1886					241,716	9,855
1887					473,559	13,831
1888					196,602	74,542
1889					235,855	10,777
1890					420,492	18,154
1891	446,770	\$ 18,471	585	\$ 104	447,355	18,575
1892	310,387	12,945	1,146	100	311,533	13,045
1893	107,719	3,696	2,196	394	109,915	4,090
1894	53,985	2,775	5,297	513	59,282	3,288
1895	22,831	1,044	10,237	2,023	33,068	3,067
1896	601	101	7,489	999	8,090	1,100
1897			342	49	342	49
1898	96	4	12,735	3,001	12,831	3,005
1899			3,425	859	3,425	859
1900	40	2	8,559	2,394	8,599	2,396
1901	14,168	691	375	66	14,543	757
1902	400	40	626	146	1,026	186
1903	350	15	1,013	190	1,363	205
1904	4,207	213	2,126	470	6,333	683



PETROLEUM

TABLE 5.

PETROLEUM.

IMPORTS OF PETROLEUM AND PRODUCTS OF.

Fiscal Year.		Gallons.	Value.
			\$
1880.		687,641	131,359
1881.		1,437,475	262,168
1882.		3,007,702	398,031
1883.		3,086,316	358,546
1884.		3,160,282	380,082
1885.		3,767,441	415,195
1886.		3,819,146	421,836
1887.		4,290,003	467,003
1888.		4,523,056	408,025
1889.		4,650,274	484,462
1890.		5,075,650	515,852
1891.		5,071,386	498,330
1892.		5,649,145	475,732
1893.		6,002,141	446,389
1894.		6,597,108	439,988
1895.		7,577,674	525,372
1896.		8,005,891	735,913
1897.		8,415,302	697,169
1898.		9,074,311	724,519
1899.		10,394,208	763,303
1900.		9,633,647	864,833
1901.		11,082,822	982,640
1902.		13,220,005	1,107,207
1903.		18,799,312	1,643,371
Oils :—			
Mineral :		Duty.	Gallons. Value.
			\$
1904	(a) Coal and kerosene, distilled, purified or refined, naphtha and petroleum, N.E.S.	2½c.p.gall.	17,369,930 1,526,989
	(b) Products of petroleum.....	2½c. "	855,383 100,609
	(c) Crude petroleum, fuel and gas oils (other than naphtha, benzine or gasoline) when imported by manufacturers (other than oil refiners) for use in their own factories, for fuel purposes or for the manufacture of gas.....	1½c. "	4,318,569 275,515
	(d) Illuminating oils composed wholly or in part of the products of petroleum, coal, shale or lignite, costing more than 30 cents per gallon . . . . .	20 p. c.	10,076 3,646
	(e) Lubricating oils composed wholly or in part of petroleum, costing less than 25 cents per gallon.....	2½c.p.gall.	1,967,157 245,864
	Total.....		24,521,115 2,152,623



SESSIONAL PAPER No. 26a

TABLE 6.\*

PETROLEUM.

PETROLEUM.

IMPORTS OF CRUDE AND MANUFACTURED OILS, OTHER THAN ILLUMINATING.

Fiscal Year.	Gallons.	Fiscal Year.	Gallons.
1881.....	960,691	1893 ... ..	1,481,749
1882.....	1,656,290	1894.....	1,860,829
1883.....	1,895,488	1895.....	1,106,993
1884.....	2,017,707	1896.....	1,079,965
1885.....	2,489,326	1897.....	802,286
1886.....	2,491,530	1898.....	1,047,026
1887.....	2,624,399	1899.....	1,017,278
1888.....	2,701,714	1900.....	1,406,700
1889.....	2,882,462	1901.....	1,838,966
1890.....	3,054,908	1902.....	2,296,353
1891.....	3,049,384	1903.....	4,316,010
1892.....	3,047,199	1904.....	7,141,109

\* The figures for the years from 1881 to 1894, inclusive, represent the total imports of petroleum and products, less the quantity of imported illuminating oils, inspected by the Inland Revenue Department. For 1895 and subsequent years, the Table is composed of items (b), (c) and (e) of Table 5.

TABLE 7.

PETROLEUM.

IMPORTS OF PARAFFINE WAX.

Fiscal Year.	Pounds.	Value.
1883.....	43,716	\$ 5,166
1884.....	39,010	6,079
1885.....	59,967	8,123
1886.....	62,035	7,953
1887.....	61,132	6,796
1888.....	53,862	4,930
1889.....	63,229	5,250
1890.....	239,229	15,844
1891.....	753,854	50,275
1892.....	733,873	48,776
1893.....	452,916	38,935
1894.....	208,099	15,704
1895.....	163,817	11,579
1896.....	150,287	10,042
1897.....	138,703	7,945
1898.....	103,570	5,987
1899.....	92,242	4,025
1900.....	47,400	3,529
1901.....	118,845	9,639
1902.....	225,885	12,750
1903.....	592,642	28,674
1904...(Duty, 30 p. c.)	418,967	18,440



PETROLEUM.

TABLE 8.

PETROLEUM.

IMPORTS OF PARAFFINE WAX CANDLES.

Fiscal Year.	Pounds.	Value.	Fiscal Year.	Pounds.	Value.
1880.....	10,445	\$2,269	1893.....	8,351	\$1,735
1881.....	7,494	1,683	1894.....	10,818	1,685
1882.....	5,818	1,428	1895.....	19,448	2,541
1883.....	7,149	1,734	1896.....	25,787	4,072
1884.....	8,755	2,229	1897.....	25,114	2,929
1885.....	9,247	2,449	1898.....	60,802	4,427
1886.....	12,242	2,587	1899.....	62,331	5,856
1887.....	21,364	3,611	1900.....	27,663	3,671
1888.....	22,054	2,829	1901.....	44,562	3,588
1889.....	8,038	1,337	1902.....	51,120	5,752
1890.....	7,233	1,186	1903.....	83,377	9,025
1891.....	10,598	2,116	1904. . (Duty,		
1892.....	9,259	1,952	30 p.c.) .....	83,471	9,078

In August 1904, the Dominion parliament passed an Act providing for the payment of a bounty on crude petroleum produced in Canada. The full text of the Act and the regulations respecting it are reproduced below. This bounty stimulated the work of prospecting and boring in various parts of the Dominion, but, so far, no production has been reported from any new districts outside the Ontario area.

“ An Act to provide for the payment of bounties on crude petroleum from Canadian wells.

(Assented to 10th August 1904.)

His Majesty, by and with the consent of the Senate and the House of Commons of Canada, enacts as follows :

1. This Act may be cited as The Petroleum Bounty Act, 1904.
2. The Governor in Council may authorize the payment out of the Consolidated Revenue Fund of a bounty of one and one-half cent per imperial gallon on all crude petroleum produced from wells in Canada on and after the eighth day of June, one thousand nine hundred and four, the said bounty to be paid to the producer of the petroleum.
3. The Governor in Council may authorize the payment out of the Consolidated Revenue Fund of a bounty of one and one-half cent per imperial gallon on all crude petroleum produced from wells in Canada and held in storage tanks or other storage receptacles on the eighth day of June, one thousand nine hundred and four, the said bounty to be paid to the actual owner of the petroleum on that day.
4. The Minister of Trade and Commerce shall be charged with the administration of this Act, and may, subject to the approval of the Governor in Council, make such regulations as he deems necessary respecting the payment of the said bounties,
5. This Act shall be deemed to have come into force on the eighth day of June, one thousand nine hundred and four.”



SESSIONAL PAPER No. 26a

## REGULATIONS.

## PETROLEUM.

Regulations under the provisions of the Petroleum Bounty Act, 1904, intituled—

“An Act to provide for the payment of a Bounty on Crude Petroleum from Canadian Wells.”

1. The Minister of Trade and Commerce having been charged with the administration of the Act has, with the approval of the Governor in Council, made the following regulations respecting the payment of Bounties.

2. All producers of crude petroleum from wells in Canada who desire to avail themselves of the provisions of the Act above quoted, and to be paid a bounty, before making claim for such bounty, shall notify the Minister of their intentions to claim under the provision of the Act and shall for registration purposes, declare where or approximately where their wells are situated, the number thereof, their estimated monthly production, the place and names of the purchasers of the crude product, and in the case of a co-partnership the names of the individual partners, and in the case of an incorporated company, the names of the President, Secretary and Manager, as well as the name and address of the official authorized to make the claim.

3. The books of the claimants and those of the refineries, tanking companies, gas companies, fuel oil companies and sundry purchasers, shall be at all times open to the examination of the supervising officer, and of any officer of the Department of Trade and Commerce who may be detailed by the Minister for such purpose.

4. All claims shall be substantiated by the certificate of the receiving stations, tanking companies, refineries, gas companies, fuel oil companies, manufacturers of lubricating oils, or other purchasers as well as that of the supervising officer.

5. Samples must be taken at time of delivery of all crude oil sold by claimants and a record of same kept by the receivers and buyers.

6. The supervising officer may, at any time, make examination of samples or take samples at any of the receiving stations, fuel oil companies, tanking companies, refineries, gas companies, or at any purchasers or receivers of crude oil.

7. Claims for bounty may be made monthly when amounting to \$25 or more per month, and quarterly, when for a less sum.

8. Claims when made and certified as above, shall be forwarded by the supervising officer to the Department of Trade and Commerce for payment.

9. No claim will be recognized or paid unless the claimant has conformed to the requirements of regulation 2, and unless claim is made and substantiated as per regulation 4 and in form hereto attached.

10. *All claims to be made in duplicate.*



PHOSPHATE.

PHOSPHATE.

In 1904 the production of phosphate only reached 817 tons, valued at \$4,590. This is a large decrease as compared with 1903, but the phosphate output is necessarily very irregular, for the mineral is chiefly obtained as a by-product in the working of the mica mines of Labelle and Wright counties, Quebec. The larger proportion of the production is used in the manufacture of phosphorus, and the balance is made into fertilizer.

TABLE 1.

PHOSPHATE.

ANNUAL PRODUCTION.

Calendar Year.	Tons.	Average Value per ton.	Value.
1886.....	20,495	\$14.85	\$304,338
1887....	23,690	13.50	319,815
1888.....	22,485	10.77	242,285
1889.....	30,988	10.21	316,662
1890...	31,753	11.37	361,045
1891.....	23,588	10.24	241,603
1892....	11,932	13.20	157,424
1893 ..	8,198	8.65	70,942
1894.....	6,861	6.00	41,166
1895.....	1,822	5.25	9,565
1896.....	570	6.00	3,420
1897 ...	908	4.39	3,984
1898.....	733	5.00	3,665
1899.....	3,000	6.00	18,000
1900.....	1,415	5.02	7,105
1901....	1,033	6.07	6,280
1902.....	856	5.79	4,953
1903.....	1,329	6.18	8,214
1904 ..	817	5.62	4,590



TABLE 2.  
PHOSPHATE.  
EXPORTS.

Calendar Year.	Ontario.		Quebec.		Totals.	
	Tons.	*Value.	Tons.	*Value.	Tons.	*Value.
1878.....	824	\$12,278	9,919	\$195,831	10,743	\$208,109
1879.....	1,842	20,565	6,604	101,470	8,446	122,035
1880.....	1,387	14,422	11,673	175,664	13,060	190,086
1881.....	2,471	36,117	9,497	182,339	11,968	218,456
1882.....	568	6,338	16,585	302,019	17,153	308,357
1883.....	50	500	19,666	427,168	19,716	427,668
1884.....	763	8,890	20,946	415,350	21,709	424,240
1885.....	434	5,962	28,535	490,331	28,969	496,293
1886.....	644	5,816	19,796	337,191	20,460	343,007
1887.....	705	8,277	22,447	424,940	23,152	433,217
1888.....	2,643	30,247	16,133	268,362	18,776	298,609
1889.....	3,547	38,833	26,440	355,935	29,987	394,768
1890.....	1,866	21,329	26,591	478,040	28,457	499,369
1891.....	1,551	16,646	15,720	368,015	17,271	384,661
1892.....	1,501	12,544	9,981	141,221	11,482	153,765
1893.....	1,990	11,550	5,748	56,402	7,738	67,952
1894.....	1,980	10,560	3,470	29,610	5,450	40,170
1895.....			250	2,500	250	2,500
1896.....	1	5	299	2,990	300	2,995
1897.....	70	450	165	400	235	850
1898.....	21	240	702	8,000	723	8,240
1899.....	215	1,850	93	1,725	308	3,575
1900.....					Nil	Nil
1901.....					6	120
1902.....					70	1,880
1903.....					1	20
1904.....					191	5,348

\*These values do not compare with those in Table 1 above ; the spot value is adopted for the production whilst the exports are valued upon quite a different basis.



PYRITES.

PYRITES.

Ontario and Quebec are the only provinces from which returns of production of pyrites have been received. In Quebec the principal producers are the Eustis Mining Company, Eustis, Que., and the Nichols Chemical Company, Capelton. In Ontario the American Madoc Mining Company operates two deposits, while the British American Mining Company is also doing some work. The Ontario production is used in the manufacture of sulphuric acid, as is also the ore from the Quebec deposits, which however is also treated for the recovering of the copper contents.

TABLE 1.  
PYRITES.  
ANNUAL PRODUCTION.

Calendar Year.	Tons. 2,000 lbs.	Value.
		\$
1886.....	42,906	193,077
1887.....	38,043	171,194
1888.....	63,479	285,656
1889.....	72,225	307,292
1890.....	49,227	123,067
1891.....	67,731	203,193
1892.....	59,770	179,310
1893.....	58,542	175,626
1894.....	40,527	121,581
1895.....	34,198	102,594
1896.....	33,715	101,155
1897.....	38,910	116,730
1898.....	32,218	128,872
1899.....	27,687	110,748
1900.....	40,031	155,164
1901.....	35,261	130,544
1902.....	35,616	138,939
1903.....	33,982	127,713
1904.....	37,180	134,033

Table 1 shows the figures of production since 1886. The output for 1904 shows an increase over 1903, and according to all appearances the figures will continue to grow, as the Eustis Mining Company has just completed some installations which will enable them to greatly increase their production.



TABLE 2.

PYRITES.

PYRITES.

IMPORTS :—BRIMSTONE AND CRUDE SULPHUR.

Fiscal Year.	Pounds.	Value.
		\$
1880.....	1,775,489	27,401
1881.....	2,118,720	33,956
1882.....	2,375,821	40,329
1883.....	2,336,085	36,737
1884.....	2,195,735	37,463
1885.....	2,248,986	35,043
1886.....	2,922,043	43,651
1887.....	3,103,644	38,750
1888.....	2,048,812	25,318
1889.....	2,427,510	34,006
1890.....	4,440,799	44,276
1891.....	3,601,748	46,351
1892.....	4,769,759	67,095
1893.....	6,381,203	77,216
1894.....	5,845,463	61,558
1895.....	4,900,225	56,965
1896.....	6,934,190	63,973
1897.....	8,672,751	87,719
1898.....	38,026,798	373,786
1899.....	24,517,026	265,799
1900.....	21,128,656	215,433
1901.....	23,856,651	270,608
1902.....	24,640,735	325,307
1903.....	24,412,737	259,123
1904*.....	19,364,730	204,663

\*Brimstone, crude, or in roll or flour, and sulphur in roll or flour. Duty free.

SALT

As in former years, the salt production was limited to the western part of the Ontario peninsula.

This industry is only limited by the demand, for immense quantities of salt exist in the underlying formations of that part of the ccuntry at depths varying from 975 ft. to 1,400 ft.

In 1904, the production slightly exceeded that of 1903, the total value having reached \$321,778.

As will be seen by glancing at the tables, the output of salt does not vary very much from year to year, but on the whole there is a steady increase which follows the growth of the market caused by the increase of population.



SALT.

The imports of salt are divided into two classes, which are given in tables 3 and 4 respectively. Table 3 gives the imports of salt paying a duty of 5 cts. to 7½ cts. per 100 lbs. comprising salt not for use of fisheries, imported from other countries than the United Kingdom. Table 4 gives the more important item of salt imported free of duty from the United Kingdom, or imported for the use of the sea or gulf fisheries. This for the year 1904 amounted to \$338,082, of which over \$300,000 came from some part of the British Empire.

TABLE 1.

SALT.

ANNUAL PRODUCTION.

Calendar Year.	Tons.	Value.
1886.....	62,359	\$227,195
1887.....	60,173	166,394
1888.....	59,070	185,460
1889.....	32,832	129,547
1890.....	43,754	198,857
1891.....	45,021	161,179
1892.....	45,486	162,041
1893.....	62,324	195,926
1894.....	57,199	170,687
1895.....	52,376	160,455
1896.....	43,960	169,693
1897.....	51,348	225,730
1898.....	57,142	248,639
1899.....	59,339	254,390
1900.....	62,055	279,458
1901.....	59,428	262,328
1902.....	64,456	292,581
1903.....	62,452	297,517
1904.....	69,477	321,778



TABLE 2.  
SALT.  
EXPORTS.

SALT.

Calendar Year.	Bushels.	Value.
1880.....	467,641	\$46,211
1881.....	343,208	44,627
1882.....	181,758	18,350
1883.....	199,733	19,492
1884.....	167,029	15,291
1885.....	246,794	18,756
1886.....	224,943	16,886
1887.....	154,045	11,526
1888.....	15,251	3,987
1889.....	8,557	2,390
1890.....	6,605	1,667
1891.....	5,290	1,277
1892.....	2,000	504
1893.....	4,940	1,267
1894.....	4,639	1,120
1895.....	4,865	959
1896.....	3,842	899
1897.....	5,383	1,193
1898.....	5,202	1,252
1899.....	11,205	2,773
1900.....	37,653	8,997
1901.....	39,224	6,510
1902.....	9,331	3,798
	Pounds.	
1903.....	1,915,648	5,927
1904.....	1,006,036	4,186

TABLE 3.  
SALT.  
IMPORTS :—SALT PAYING DUTY.

Fiscal Year.	Pounds.	Value.	Fiscal Year.	Pounds.	Value.
1880. . . . .	726,640	\$ 3,916	1892. . . . .	18,648,191	\$ 65,963
1881. . . . .	2,588,465	6,355	1893. . . . .	21,377,339	79,838
1882. . . . .	3,679,415	12,318	1894. . . . .	15,867,825	53,336
1883. . . . .	12,136,968	36,223	1895. . . . .	8,498,404	29,881
1884. . . . .	12,770,950	38,949	1896. . . . .	7,665,257	24,550
1885. . . . .	10,397,761	31,726	1897. . . . .	11,911,766	33,470
1886. . . . .	12,266,021	39,181	1898. . . . .	11,068,785	32,792
1887. . . . .	10,413,258	35,670	1899. . . . .	11,781,453	32,839
1888. . . . .	10,509,799	32,136	1900. . . . .	11,028,337	30,180
1889. . . . .	11,190,088	38,968	1901. . . . .	11,625,688	34,087
1890. . . . .	15,135,109	57,549	1902. . . . .	13,892,849	39,605
1891. . . . .	15,140,827	59,311	1903. . . . .	14,554,693	41,785
			Duty.		
1904	{	Salt, coarse, N.E.S . . . . .	5c. per 100 lbs.	10,094,505	\$23,594
		Salt, fine, in bulk . . . . .	5c. "	2,361,200	5,408
		Salt, N.E.S., in bags, barrels or			
		other packages . . . . .	7½c. "	17,323,478	44,764
Total . . . . .				29,779,183	73,826



SALT.

TABLE 4.

SALT.

IMPORTS : SALT NOT PAYING DUTY.

Fiscal Year.	Pounds.	Value	Fiscal Year.	Pounds.	Value.
1880.....	212,714,747	\$400,167	1893.....	191,595,530	281,462
1881.....	231,640,610	488,278	1894.....	196,668,730	328,300
1882.....	166,183,962	311,489	1895.....	201,691,248	332,711
1883.....	246,747,113	386,144	1896.....	205,005,100	338,888
1884.....	225,390,121	321,243	1897.....	215,844,484	312,117
1885.....	171,571,209	255,719	1898.....	202,634,927	293,410
1886.....	180,205,949	255,359	1899.....	183,046,365	267,520
1887.....	203,042,332	285,455	1900.....	193,554,550	295,253
1888.....	184,166,986	220,975	1901.....	216,271,603	339,887
1889.....	180,847,800	253,069	1902.....	238,648,737	385,629
1890.....	158,490,075	252,291	1903.....	232,708,675	361,185
1891.....	195,491,410	321,239	1904*.....	198,634,047	338,082
1892.....	201,831,217	314,995			

\*Salt imported from the United Kingdom, or any British possession, or imported for the use of the sea or gulf fisheries.

We give a list of the chief salt works in Ontario, most of which were in operation in 1904 :

- The Canadian Salt Co., Ltd., E. G. Henderson, Vice-Pres., Windsor, Ont.
- Saginaw Lumber and Salt Co., Sandwich, Ont.
- Mooretown Salt Co., Ltd., Mooretown, Ont.
- Carter and Kittermaster, Mooretown, Ont.
- Sarnia Salt Co., Ltd., Sarnia, Ont.
- Sarnia Bay Mills Co., Sarnia, Ont.
- Cleveland Lumber and Salt Co., Sarnia, Ont.
- Elarton Salt Works Co , Ltd., C. V. Morris, Warwick, Ont.
- Parkhill Salt Co., A. K. Hodgins, Parkhill, Ont.
- Exeter Salt Works Co., J. B. Carling, Sec'y., Exeter, Ont.
- Hensall Salt Works, Geo. McEwan, Hensall, Ont.
- Lake Huron and Manitoba Milling Co., Ltd., P. A. McGaw, Sec'y., Goderich, Ont.
- R. and J. Ransford, Clinton, Ont.
- Operating the following plants :—
  - Coleman Salt Works, Seaforth, Ont.
  - Stapleton Salt Works, Clinton, Ont.
  - North American Chemical Co., Goderich, Ont.
  - Goderich Salt Works, Goderich, Ont.
  - Brussels Salt Works, Brussels, Ont.
  - Clinton Salt Works, John McGarva, Clinton, Ont.



SESSIONAL PAPER No. 26a

Maitland Salt Works, John S. Platt, Goderich, Ont.

SALT.

The Grey, Young and Sparling Co. of Ont., Ltd., F. G. Sparling,  
Wingham, Ont.

The Ontario People's Salt and Soda Co., Ltd., Jno. Tolmie, Sec'y.,  
Kincardine, Ont.

Western Salt Co., Mooretown, Ont.

Empire Salt Co., Sarnia, Ont.

STRUCTURAL MATERIALS.

These comprise building stone, granite, marbles, slate, flagstone, cements, lime, etc., as well as the manufactures of clay such as building bricks, tiles, drain pipe, earthenware and coarse pottery.

It is impossible to obtain accurate figures of production. Many of these industries, such as quarrying, brick making, etc., are intermittent, and are scattered over such a large area as Canada that it is not possible to obtain anything like full returns, so that a large proportion has to be estimated. These remarks, however, do not apply to the manufacture of cement, for which if has been found possible to obtain as accurate records as of any other well established and continuous industry.

TABLE 1.

STRUCTURAL MATERIALS.

ANNUAL PRODUCTION OF BUILDING STONE.

Calendar Year.	Value.
1886.....	\$ 642,509
1887.....	552,267
1888.....	641,712
1889.....	913,691
1890.....	964,783
1891.....	708,736
1892.....	609,827
1893.....	1,100,000
1894.....	1,200,000
1895.....	1,095,000
1896.....	1,000,000
1897.....	1,000,000
1898..	1,300,000
1899.....	1,500,000
1900.....	1,520,000
1901.....	1,650,000
1902.....	1,900,000
1903.....	1,975,000
1904.....	1,930,000



STRUCTURAL  
MATERIALS.

TABLE 2.  
STRUCTURAL MATERIALS.  
EXPORTS OF STONE AND MARBLE, WROUGHT AND UNWROUGHT.

Calendar Year.	Wrought.	Unwrought.
1890.....	\$21,725	\$43,611
1891.....	13,398	46,162
1892.....	7,698	47,424
1893.....	9,102	12,532
1894.....	22,576	34,130
1895.....	8,587	51,616
1896.....	4,934	32,897
1897.....	9,415	42,034
1898.....	2,526	65,370
1899.....	5,092	101,931
1900.....	5,933	115,711
1901.....	5,917	157,739
1902.....	8,632	124,829
1903.....	7,684	46,295
1904.....	4,760	17,802

TABLE 3.  
STRUCTURAL MATERIALS.  
IMPORTS OF BUILDING STONE.

Calendar Year	Value.	Calendar Year.	Value.
1880.. ..	\$ 35,970	1892.....	\$95,550
1881.....	58,149	1893.....	56,510
1882.....	33,623	1894.....	52,908
1883.....	35,061	1895.....	44,282
1884.....	51,088	1896.....	54,130
1885.....	30,491	1897.....	38,714
1886.....	41,675	1898.....	28,495
1887.....	54,368	1899.....	48,040
1888.....	86,373	1900.....	64,533
1889.....	100,314	1901.....	46,078
1890.....	132,155	1902.....	99,074
1891.....	170,890	1903.....	87,866
1904 { Flagstones, granite and rough freestone, sandstone, and all building stone, not hammered or chiselled. Duty 15 p.c....		\$59,864	
		33,914	
		\$93,778	



TABLE 4.

STRUCTURAL  
MATERIALS.

STRUCTURAL MATERIALS.

IMPORTS OF MANUFACTURES OF STONE OR GRANITE, N.E.S.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880. . . . .	\$29,408	1892. . . . .	\$39,479
1881. . . . .	36,877	1893. . . . .	49,323
1882. . . . .	37,267	1894. . . . .	49,510
1883. . . . .	45,636	1895. . . . .	51,050
1884. . . . .	45,290	1896. . . . .	51,499
1885. . . . .	39,867	1897. . . . .	34,026
1886. . . . .	41,984	1898. . . . .	41,240
1887. . . . .	41,829	1899. . . . .	60,148
1888. . . . .	47,487	1900. . . . .	57,039
1889. . . . .	61,341	1901. . . . .	66,639
1890. . . . .	84,396	1902. . . . .	72,397
1891. . . . .	61,051	1903. . . . .	78,629
1904 {	Granite—Sawn only. . . . .	Duty, 20 p.c.	\$ 7,930
	" Finished and polished . . . . .	" 35 p.c.	.. ..
	" Manufactures of N.O.P . . . . .	" 35 p.c.	75,428
	Paving blocks. . . . .	" 20 p.c.	38,336
	Manufactures of stone, N.O.P . . . . .	" 30 p.c.	19,471
			\$141,165

TABLE 5.

STRUCTURAL MATERIALS.

ANNUAL PRODUCTION OF MARBLE.

Calendar Year.	Tons.	Value.
1886 . . . . .	501	\$9,900
1887. . . . .	242	6,224
1888. . . . .	191	3,100
1889. . . . .	83	989
1890. . . . .	780	10,776
1891. . . . .	240	1,752
1892. . . . .	340	3,600
1893. . . . .	590	5,100
1894. . . . .	Nil.	Nil.
1895. . . . .	200	2,000
1896. . . . .	224	2,405
1897 to 1904 inclusive. . . . .	Nil.	Nil.



STRUCTURAL  
MATERIALS.

TABLE 6.  
STRUCTURAL MATERIALS.  
IMPORTS OF MARBLE.

Fiscal Year.			Value.
1880.			\$ 63,015
1881.			85,977
1882.			100,505
1883.			128,520
1884.			108,771
1885.			102,835
1886.			117,752
1887.			104,250
1888.			94,681
1889.			118,421
1890.			99,353
1891.			107,661
1892.			106,268
1893.			96,177
1894.			94,657
1895.			83,422
1896.			90,065
1897.			77,150
1898.			95,894
1899.			101,879
1900.			94,017
1901.			96,159
1902.			130,424
1903.			153,481
1904	Marble and manufactures of :—		Duty.
	Marble sawn only	20 %	\$117,186
	Finished and polished	35 %	
	Rough, not hammered or chiselled	15 %	11,922
	Manufactures of, N.O.P.	35 %	52,403
Total, marble and manufactures of.....			\$181,511

TABLE 7.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF GRANITE.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
1886.	6,062	\$63,309	1896.	18,717	106,709
1887.	21,217	142,506	1897.	10,345	61,934
1888.	21,352	147,305	1898.	23,897	81,073
1889.	10,197	79,624	1899.	13,418	90,542
1890.	13,307	65,985	1900.		80,000
1891.	13,637	70,056	1901.		155,000
1892.	24,302	89,326	1902.		210,000
1893.	22,521	94,393	1903.		200,000
1894.	16,392	109,936	1904.		150,000
1895.	19,238	84,838			



TABLE 8.  
STRUCTURAL MATERIALS.

STRUCTURAL  
MATERIALS.

ANNUAL PRODUCTION OF SLATE.

Calendar Year.	Tons.	Value.
1886.....	5,315	861,675
1887.....	7,357	89,000
1888.....	5,314	90,689
1889.....	6,935	119,160
1890.....	6,368	100,250
1891.....	5,000	65,000
1892.....	5,180	69,070
1893.....	7,112	90,825
1894.....		75,550
1895.....		58,900
1896.....		53,370
1897.....		42,800
1898.....		40,791
1899.....		33,406
1900.....		12,100
1901.....	715	9,980
1902.....		19,200
1903.....		22,040
1904.....		23,247

TABLE 9.  
STRUCTURAL MATERIALS.

EXPORTS OF SLATE.

Calendar Year.	Tons.	Value.
1884.....	539	86,845
1885.....	346	5,274
1886.....	34	495
1887.....	27	373
1888.....	22	475
1889.....	26	3,303
1890.....	12	153
1891.....	15	195
1892.....	87	2,038
1893.....	178	3,168
1894.....	187	3,610
1895.....	36	574
1896.....	301	8,913
1897.....	Nil.	Nil.
1898.....	Nil.	Nil.
1899.....	Nil.	Nil.
1900.....	Nil.	Nil.
1901.....	16,750	10,000
1902.....		
1903.....		
1904.....		



STRUCTURAL  
MATERIALS.

TABLE 10.  
STRUCTURAL MATERIALS.  
IMPORTS OF SLATE.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880.....	\$21,431	1892..	\$50,441
1881.....	22,184	1893.....	51,179
1882.....	24,543	1894.....	29,267
1883.....	24,968	1895.....	19,471
1884.....	28,816	1896.....	24,176
1885.....	28,169	1897.....	21,615
1886.....	27,852	1898.....	24,907
1887.....	27,845	1899.....	33,100
1888.....	23,151	1900.....	53,707
1889.....	41,370	1901.....	72,187
1890.....	22,871	1902.....	72,601
1891.....	46,104	1903.....	84,437
		Duty.	
1904	{ Slate and manufactures of--		
	Mantels.....	30 %	
	Roofing slate.....	25 %	not over 75c per square
	School writing slates.....	25 %	\$38,245
	Slate pencils.....	25 %	28,091
	Slate of all kinds and manufactures of, N.E.S..	30 %	2,357
Total. ....			17,364
			\$86,057

TABLE 11.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF FLAGSTONE.

Calendar Year.	Quantity, Sq. ft.	Value.
1886.....	70,000	\$ 7,875
1887.....	116,000	11,600
1888.....	64,800	6,580
1889.....	14,000	1,400
1890.....	17,865	1,643
1891.....	27,300	2,721
1892.....	13,700	1,869
1893.....	40,500	3,487
1894.....	152,700	5,298
1895.....	80,005	6,687
1896.....		6,710
1897.....		7,190
1898.....		4,250
1899.....		7,600
1900.....		5,250
1901.....		4,575
1902.....	87,300	7,760
1903.....	79,200	6,688
1904.....	75,600	6,720



TABLE 12.  
STRUCTURAL MATERIALS.  
IMPORTS OF FLAGSTONE.

STRUCTURAL  
MATERIALS.

Fiscal Year.	Tons.	Value.	Fiscal Year.	Tons.	Value.
1881.....	23	\$ 241	1893.....	884	8,500
1882.....	90	848	1894.....	218	2,429
1883.....	10	99	1895.....	15	84
1884.....	137	1,158	1896.....	Nil.	Nil.
1885.....	205	1,756	1897.....	13	227
1886.....	1,602	9,443	1898.....	587	1,540
1887.....	1,316	10,966	1899.....	Nil.	Nil.
1888.....	2,642	21,077	1900.....	9	63
1889.....	1,669	15,451	1901.....	14	116
1890.....	5,665	48,995	1902.....	232	1,231
1891.....	3,770	36,348	1903.....	Nil.	Nil.
1892.....	1,571	15,048	*1904.....	Nil.	Nil.

\* Flagstones dressed. Duty, 20 %. (See table 3).

*Cement.*—There is a notable increase this year in the Canadian production of cement, and also in the imports, which added together give the largest consumption yet attained in Canada. The actual sales and shipments in 1904 of cement manufactured in Canada reached 967,172 barrels, valued at \$1,338,239, an increase over 1903, of 247,179 barrels, representing an increase in value of \$112,992. These figures include both natural and Portland cement. The production of the natural rock cement is, however, fast decreasing, having been this year only 56,814 barrels, whereas, five years ago, it was nearly 150,000 barrels.

TABLE 13.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF CEMENT.

Calendar Year.	Natural Rock Cement.		Portland Cement.		Total.	
	Barrels.	Value.	Barrels.	Value.	Barrels.	Value.
1887.....		\$		\$	69,843	\$ 81,909
1888.....					50,668	35,593
1889.....					90,474	69,790
1890.....					102,216	92,405
1891.....					93,473	108,561
1892.....					117,408	147,663
1893.....					158,597	194,015
1894.....					108,142	114,637
1895.....					128,294	173,675
1896.....					149,090	201,651
1897.....	85,450	65,893	119,763	209,380	205,213	275,273
1898.....	87,125	73,412	163,084	324,168	250,209	397,580
1899.....	147,387	119,308	255,366	513,983	396,753	633,291
1900.....	125,428	99,994	292,124	562,916	417,552	662,910
1901.....	133,328	94,415	317,066	565,615	450,394	660,030
1902.....	127,931	98,932	594,594	1,028,618	722,525	1,127,550
1903.....	92,252	74,655	627,741	1,150,592	719,993	1,225,247
1904.....	56,814	50,247	910,358	1,287,992	967,172	1,338,239



STRUCTURAL  
MATERIALS.

The imports of Portland cement for this year were 2,476,388 cwt. representing 619,097 barrels of 400 lbs. This added to the production,gives a total consumption of 1,586,269 barrels.

Following is an estimate of the consumption of cement in Canada for the past eight years.

	Canadian	Imported	Total
	barrels.	barrels.	barrels.
1897.....	119,763	210,871	330,634
1898.....	163,084	268,264	431,348
1899.....	225,366	325,106	550,472
1900.....	292,124	325,340	617,464
1901.....	317,066	403,108	720,174
1902.....	594,594	492,904	1,087,498
1903.....	627,741	579,213	1,206,954
1904.....	967,172	619,097	1,586,269

TABLE 14.

STRUCTURAL MATERIALS.

EXPORTS OF CEMENT.

Calendar Year.	Value.
1891.....	\$ 2,881
1892.....	938
1893.....	1,172
1894.....	482
1895.....	937
1896.....	1,328
1897.....	644
1898.....	2,117
1899.....	2,733
1900.....	3,296
1901.....	1,514
1902.....	2,267
1903.....	2,851
1904.....	5,494



TABLE 15.  
STRUCTURAL MATERIALS.  
IMPORTS OF CEMENT IN BULK OR BAGS.

STRUCTURAL  
MATERIALS.

Fiscal Year.	Bushels.	Value.	Fiscal Year.	Bushels.	Value.
1880.....	65	\$ 28	1893.....	12,534	\$ 2,909
1881.....	579	298	1894.....	9,027	2,618
1882.....	386	86	1895.....		2,112
1883.. . . .	1,759	548	1896.....		3,672
1884.. . . .	4,626	1,236	1897.....		4,318
1885.. . . .	4,598	1,315	1898.....		3,263
1886.. . . .	6,808	1,851	1899.....		8,929
1887.....	5,421	1,419	1900.....		10,452
1888.. . . .	23,919	5,787	1901.....		4,890
1889.....	32,818	10,668	1902.....		12,234
1890.....	21,055	5,443	1903... . .		16,281
1891.....	11,281	2,890	1904*.....		14,305
1892 .. . . .	14,351	3,394			

\*Cement, N.E.S., and manufactures of cement, Duty 20 per cent.

TABLE 16.  
STRUCTURAL MATERIALS.  
IMPORTS OF HYDRAULIC CEMENT.

Fiscal Year.	Barrels.	Value.
1880.....	10,034	\$ 10,306
1881.....	7,812	7,821
1882.....	11,945	13,410
1883.....	11,659	13,755
1884.....	8,606	9,514
1885.....	5,613	5,396
1886.....	6,164	6,028
1887.....	6,160	8,784
1888.. . . .	5,636	7,522
1889.....	5,835	7,467
1890.....	5,440	9,048
1891.....	3,515	6,152
1892.....	2,214	2,782
1893.. . . .	4,896	8,060
1894.....	1,054	985
1895.. . . .	5,333	7,001
1896.....	5,688	8,948
1897.. . . .	2,494	3,937
	Cwt.	
1898.....	16,033	7,097
1899.....	1,678	694
1900.....	10,418	4,711
1901 .. . . .	17,784	6,865
1902 .. . . .	29,585	17,755
1903 .. . . .	13,690	6,333
1904 (Cement hydraulic or waterlime)*.....	12,088	5,391

\*Duty, 12½c. per 100 lbs.



STRUCTURAL  
MATERIALS.

TABLE 17.  
STRUCTURAL MATERIALS.  
IMPORTS OF PORTLAND CEMENT.

Fiscal Year.	Barrels.	Value.	Fiscal Year.	Barrels.	Value.
1880.. . . . .		\$ 55,774	1893 . . . . .	229,492	\$316,179
1881.. . . . .		45,646	1894.. . . . .	224,150	280,841
1882.. . . . .		66,579	1895.. . . . .	196,281	242,813
1883.. . . . .		102,537	1896.. . . . .	204,407	242,409
1884.. . . . .		102,857	1897.. . . . .	210,871	252,587
1885 . . . . .		111,521		Cwt.	
1886 . . . . .		120,398	1898. . . . .	1,073,058	355,264
1887 . . . . .	102,750	148,054	1899.. . . . .	1,300,424	467,994
1888. . . . .	122,402	177,158	1900 . . . . .	1,301,361	498,607
1889 . . . . .	122,273	179,406	1901.. . . . .	1,612,432	654,595
1890.. . . . .	192,322	313,572	1902 . . . . .	1,971,616	833,657
1891.. . . . .	183,728	304,648	1903.. . . . .	2,316,853	868,131
1892 . . . . .	187,233	281,553	1904 (Portland)*.	2,476,388	995,017

\* Duty, 12½c. per 100 lbs.

Natural rock cement was made by four firms in Ontario and one in Manitoba, and the total sales during the year amounted to 56,814 barrels, valued at \$50,247. This is a decrease of 35,438 barrels in quantity and \$24,408 in value.

The firms engaged in the manufacture of natural rock cement in 1904, were the following :

- Hamilton Cement Works . . . . . Hamilton, Ont.
- Queenston Cement Works . . . . . Hamilton, Ont.
- Battle's Thorold Cement Works.. Thorold, Ont.
- The Toronto Lime Company..... Toronto, Ont.
- The Manitoba Union Mining Com-  
pany Ltd . . . . . Winnipeg, Man.

*Portland Cement.*—That the use of Portland cement is increasing rapidly, is shown by the returns received at this office. The sales for the year amounted to 910,358 barrels representing a value of \$1,287,992, while the stock on hand at the end of the year was 112,051 barrels. The total quantity of Portland cement manufactured during the year was 908,990 barrels and the stock on hand at the beginning of the year was 113,419 barrels.

It is only since the last three years that the quantity of cement manufactured in Canada, exceeded that of the imported product. In 1897, the imported cement represented more than 63 per cent of the Canadian consumption, while in 1904 the proportion had fallen to



## SESSIONAL PAPER No. 26a

38 per cent. Foreign cement is mainly imported from the United States, Belgium, Great Britain and Germany, the relative quantity from each country being in the order given, with small amounts from other countries. STRUCTURAL  
MATERIALS.

We give below a list of the companies engaged in the manufacture of Portland cement during 1904 :—

Crescent Cement Works, Longue Point, Que.  
 Canadian Portland Cement Co., Deseronto, Ont.  
 Lakefield Portland Cement Co., Lakefield, Ont.  
 Imperial Cement Co., Ltd., Owen Sound, Ont.  
 Owen Sound Portland Cement Co., Ltd., Owen Sound, Ont.  
 Grey and Bruce Portland Cement Co., Ltd., Owen Sound, Ont.  
 Sun Portland Cement Co., Ltd., Owen Sound, Ont.  
 Hanover Portland Cement Co., Ltd., Hanover, Ont.  
 National Portland Cement Co., Toronto and Durham, Ont.  
 Ontario Portland Cement Co., Brantford, Ont.

Companies with works completed or in process of erection, and companies proposing to erect plants :—

International Portland Cement Co., Toronto, Ont. and Hull, Que.  
 Colonial Portland Cement Co., Wiarton, Ont.  
 Belleville Portland Cement Co., Belleville, Ontario  
 Raven Lake Portland Cement Co., Toronto and Victoria Rd., Ont.  
 Superior Portland Cement Co., Orangeville, Ont.  
 St Mary's Portland Cement Co., Orangeville, Ont.  
 Standard Portland Cement Co., Toronto, Ont.  
 Royal Cement Co., Montreal, Que.  
 Manitoba Portland Cement Co., Winnipeg, Man.  
 Vancouver Portland Cement Co., Vancouver, B.C.  
 Sydney Cement Co., Sydney, C.B.

Statistics of the other items classed under the heading of structural material are given in the following tables.



STRUCTURAL  
MATERIALS.

TABLE 18.  
STRUCTURAL MATERIALS.  
PRODUCTION OF ROOFING CEMENT.

Calendar Year.	Tons.	Value.
1890.....	1,171	\$ 6,502
1891.....	1,020	4,810
1892.....	800	12,000
1893.....	951	5,441
1894.....	815	3,978
1895.....		3,153
1896.....	86	430
1897 to 1904 inclusive.....	Nil.	Nil.

TABLE 19.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF LIME.

Calendar Year.	Value.	Calendar Year.	Value.
1886.. ....	\$283,755	1896 estimated.....	650,000
1887.....	394,859	1897 " .....	650,000
1888.....	339,951	1898 " .....	650,000
1889.....	362,848	1899 " .....	800,000
1890.....	412,308	1900 " .....	800,000
1891.....	251,215	1901 " .....	830,000
1892.....	411,270	1902 " .....	892,000
1893 estimated. ....	900,000	1903 " .....	900,000
1894 " .....	900,000	1904 " .....	780,000
1895.....	700,000		

TABLE 20.  
STRUCTURAL MATERIALS.  
EXPORTS OF LIME.

Calendar Year.	Value.
1891.....	\$119,853
1892.....	121,535
1893.....	86,623
1894.....	83,670
1895.....	71,597
1896.....	70,820
1897.....	53,177
1898.....	49,594
1899.....	73,565
1900.....	80,852
1901.....	99,194
1902.....	116,009
1903.....	131,412
1904.....	73,838



TABLE 21.  
STRUCTURAL MATERIALS.  
IMPORTS OF LIME.

STRUCTURAL  
MATERIALS.

Fiscal Year.	Barrels.	Value.
1880.....	6,100	\$ 6,013
1881.....	5,796	4,177
1882.....	5,064	5,365
1883.....	7,623	9,224
1884.....	10,804	11,200
1885.....	12,072	11,503
1886.....	11,021	9,347
1887.....	10,835	8,524
1888.....	10,142	7,537
1889.....	13,079	9,363
1890.....	8,149	5,360
1891.....	6,259	4,273
1892.....	6,132	4,241
1893.....	6,879	4,917
1894.....	6,766	4,907
1895.....	12,008	5,743
1896.....	10,239	7,331
1897.....	16,108	10,529
1898.....	12,850	9,002
1899.....	15,720	11,124
1900.....	12,865	11,211
1901.....	19,657	14,534
1902.....	24,602	17,584
1903.....	31,108	22,470
1904..... Duty, 20 p.c.	54,359	39,639

TABLE 22.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF BUILDING BRICKS.

Calendar Year.	Value.
1886.....	\$ 873,600
1887.....	986,680
1888.....	1,036,746
1889.....	1,273,884
1890.....	1,266,982
1891.....	1,061,536
1892.....	1,251,934
1893.....	1,800,000
1894.....	1,800,000
1895.....	1,670,000
1896.....	1,600,000
1897.....	1,600,000
1898.....	1,900,000
1899.....	2,195,000
1900.....	2,275,000
1901.....	2,400,000
1902.....	2,593,000
1903.....	2,832,000
1904.....	2,983,000



STRUCTURAL  
MATERIALS.

TABLE 23.  
STRUCTURAL MATERIALS.  
EXPORTS OF BRICKS.

Calendar Year.	M.	Value.
1891.....	246	\$ 1,163
1892.....	1,963	12,192
1893.....	6,073	44,110
1894.....	1,095	7,405
1895.....	1,655	8,665
1896.....	983	5,678
1897.....	573	2,679
1898.....	65	442
1899.....	172	1,351
1900.....	546	4,528
1901.....	646	5,189
1902.....	2,110	12,786
1903.....	891	5,699
1904.....	696	5,357

TABLE 24.  
STRUCTURAL MATERIALS.  
IMPORTS OF BUILDING BRICK.

Fiscal Year.	Value.
1880.....	\$ 2,067
1881.....	4,281
1882.....	24,572
1883.....	14,234
1884.....	20,258
1885.....	14,632
1886.....	5,929
1887.....	2,440
1888.....	20,720
1889.....	24,585
1890.....	12,500
1891.....	9,744
1892.....	5,075
1893.....	14,108
1894.....	18,320
1895.....	4,705
1896.....	23,189
1897.....	10,336
1898.....	6,652
1899.....	21,306
1900.....	19,305
1901.....	20,677
1902.....	33,802
1903.....	28,493
1904.....Duty, 20 p.c.	117,468



TABLE 25.

STRUCTURAL  
MATERIALS.

STRUCTURAL MATERIALS.

PRODUCTION OF TERRA COTTA, &c.

Calendar Year.	Value.	Calendar Year.	Value.
1888.....	\$ 49,800	1897.....	155,595
1889. ....	Not available.	1898.....	167,902
1890.....	90,000	1899. ....	220,258
1891.....	113,103	1900.....	259,450
1892.....	97,239	1901.....	278,671
1893.....	55,704	1902. ....	276,241
1894.....	65,600	1903.....	405,796
1895.....	195,123	1904.....	(a)
1896.....	83,855		

(a) Included in Table 22.

TABLE 26.

STRUCTURAL MATERIALS.

PRODUCTION OF SEWER PIPES, &c.

Calendar Year	Value.
1888.....	\$266,320
1889.....	Not available.
1890.....	348,000
1891.....	227,300
1892.....	367,660
1893.....	350,000
1894.....	250,325
1895.....	257,045
1896.....	153,875
1897.....	164,250
1898.....	181,717
1899.....	161,546
1900.....	231,525
1901.....	248,115
1902.....	301,965
1903.....	317,970
1904.....	440,894



STRUCTURAL  
MATERIALS.

TABLE 27.  
STRUCTURAL MATERIALS.  
IMPORTS OF DRAIN TILES AND SEWER PIPES.

Fiscal Year.		Value.
1880.....		\$ 33,796
1881.....		37,368
1882.....		70,065
1883.....		70,699
1884.....		71,755
1885.....		69,589
1886.....		57,953
1887.....		71,203
1888.....		101,257
1889.....		83,215
1890.....		77,434
1891.....		87,195
1892.....		59,537
1893.....		39,001
1894.....		24,625
1895.....		21,053
1896.....		19,296
1897.....		34,286
1898.....		29,611
1899.....		33,898
1900.....		39,149
1901.....		56,083
1902.....		55,530
1903.....		57,352
		Duty.
1904	Drain tile, not glazed.....	20 %
	Drain pipes, sewer pipes, chimney linings or vents, chimney tops and inverted blocks, glazed or unglazed.....	35 %
	Total.....	
		\$ 1,637
		53,958
		\$55,595

TABLE 28.  
STRUCTURAL MATERIALS.  
ANNUAL PRODUCTION OF POTTERY.

Calendar Year.	Value.	Calendar Year.	Value.
1888.....	\$ 27,750	1897.....	129,629
1889.....	Not available	1898.....	214,675
1890.....	195,242	1899..	185,000
1891.....	258,844	1900..	200,000
1892.....	265,811	1901.....	200,000
1893.....	213,186	1902..	200,000
1894.....	162,144	1903.....	200,000
1895.....	151,588	1904.....	140,000
1896.....	163,427		



TABLE 29.  
STRUCTURAL MATERIALS.  
IMPORTS OF EARTHENWARE.

STRUCTURAL  
MATERIALS.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880..	\$322,333	1892.....	\$748,810
1881.....	439,029	1893.....	709,737
1882.....	646,734	1894.....	695,514
1883.....	657,886	1895.....	547,935
1884.....	544,586	1896.....	575,493
1885.....	511,853	1897.....	595,822
1886.....	599,269	1898.....	675,874
1887.....	750,691	1899.....	916,727
1888.....	697,082	1900.....	959,526
1889.....	697,949	1901.....	1,114,677
1890.....	695,206	1902.....	1,275,093
1891.....	634,907	1903.....	1,406,610
1904 { Earthenware and china :—		Duty.	
Baths, tubs and washstands, of earthenware, stone,		30 %	\$ 70,927
cement or clay, or of other material, N.O.P.....			
Brown or coloured earthen and stoneware, and		30 %	35,445
Rockingham ware.....			
Decorated, printed or sponged, and all earthenware,		30	714,061
N.E.S.....			
Demijohns, churns and crocks.....		30	8,265
White granite or ironstone ware, C.C. or cream			
coloured ware.....		30 %	250,100
China and porcelain ware.....		30 %	420,851
Earthenware tiles.....		35 %	55,319
Manufactures of earthenware, N.E.S. ....		30 %	56,388
Total .....			1,611,356

TABLE 30.  
STRUCTURAL MATERIALS.  
EXPORTS OF SAND AND GRAVEL.

Calendar Year.	Tons.	Value.
		\$
1893.....	329,116	121,795
1894.....	324,656	86,940
1895.....	277,162	118,359
1896.....	224,769	80,110
1897.....	152,963	76,729
1898.....	165,954	90,498
1899.....	242,450	101,640
1900.....	197,558	101,666
1901.....	197,302	117,465
1902.....	159,793	119,120
1903.....	355,792	124,006
1904.....	399,809	129,803



MISCELLANEOUS,

NON-METALLIC.

MISCELLA-  
NEOUS.

*Arsenic.*—The Deloro mine in Hastings county, province of Ontario, was closed down in 1903, and remained idle in 1904. This had hitherto been the source of the Canadian production of arsenic, which was recovered in the process of treating auriferous mispickel.

However, there was a small production of arsenic in 1904 derived from a new source. This was obtained from the cobalt and nickel arsenides, which are responsible for the total output this year; it amounted to 72 tons valued at \$903, according to returns made to the Ontario Bureau of Mines.

TABLE 1.

MISCELLANEOUS.

NON-METALLIC.

ANNUAL PRODUCTION OF ARSENIC.

Calendar Year.	Tons.	Value.
1885 .....	440	\$17,600
1886 ..	120	5,460
1887 .....	30	1,200
1888 ..	30	1,200
1889 .....	Nil.	Nil.
1890 .....	25	1,500
1891 .....	20	1,000
1892 .....	Nil.	Nil.
1893 .....	"	"
1894 .....	7	420
1895 .....	Nil.	Nil.
1896 .....	"	"
1897 .....	"	"
1898 .....	"	"
1899 .....	57	4,872
1900 .....	303	22,725
1901 .....	695	41,676
1902 .....	800	48,000
1903 .....	257	15,420
1904 .....	(a) 72	903

(a.) Arsenic in ore, &c.



TABLE 2.  
MISCELLANEOUS.  
NON-METALLIC.  
IMPORTS OF ARSENIC.

MISCELLA-  
NEOUS.

Fiscal Year.	Pounds.	Value.	Fiscal Year.	Pounds.	Value.
1880.....	18,197	\$ 576	1893... ..	447,079	\$12,907
1881.....	31,417	1,070	1894. ....	292,505	10,018
1882.....	138,920	3,962	1895. . . .	1,115,697	31,932
1883. ....	51,953	1,812	1896. ....	664,854	27,523
1884.....	19,337	773	1897.....	152,275	8,378
1885. ....	49,080	1,566	1898. ... ..	291,967	14,270
1886.....	30,181	961	1899.....	582,383	24,203
1887.....	32,436	1,116	1900.....	230,730	11,035
1888.....	27,510	1,016	1901.....	159,263	8,361
1889.....	69,269	2,434	1902.....	106,857	6,004
1890.....	138,509	4,474	1903.....	298,375	11,824
1891.....	115,248	4,027	1904... Duty free.	414,065	12,421
1892.....	302,958	9,365			

TABLE 3  
MISCELLANEOUS.  
NON-METALLIC.  
IMPORTS OF CHALK.

Fiscal Year.	Value.	Fiscal Year.	Value.
1880.. ....	\$2,117	1893.....	\$ 9,966
1881.....	2,768	1894.....	11,308
1882.....	2,882	1895.....	7,730
1883.. ....	5,067	1896... ..	6,467
1884.....	2,589	1897.. . . .	7,432
1885.....	8,003	1898... ..	9,338
1886.....	6,583	1899.. . . .	10,461
1887.. . . .	5,635	1900.. . . .	12,212
1888.....	5,865	1901.....	11,629
1889.....	5,336	1902.....	11,337
1890.. . . .	7,221	1903.....	16,497
1891.. . . .	8,193	1904*.....	19,163
1892.....	9,558		

\* Chalk prepared. Duty, 20 p. c.



MISCELLA-  
NEOUS.

TABLE 4.  
MISCELLANEOUS.  
NON-METALLIC.  
IMPORTS OF WHITING.

Fiscal Year.	Cwt.	Value.	Fiscal Year.	Cwt.	Value.
1880.....	84,115	\$26,092	1893.....	88,835	\$25,563
1881.....	47,480	16,637	1894.....	103,633	26,649
1882.....	36,270	16,318	1895.....	102,751	25,441
1883.....	76,012	29,334	1896.....	113,791	27,322
1884.....	76,268	28,230	1897.....	102,453	22,541
1885.....	67,441	23,492	1898.....	166,293	25,761
1886.....	65,124	25,533	1899.....	134,884	34,310
1887.....	47,246	15,191	1900.....	127,455	34,575
1888.....	76,619	20,508	1901.....	209,868	60,878
1889.....	84,658	22,735	1902.....	153,982	42,136
1890.....	96,243	27,471	1903.....	139,804	39,867
1891.....	84,679	27,504	1904.....	186,919	42,507
1892.....	102,985	26,867			

\*Whiting or whitening, gilder's whiting, and Paris white. Duty free

*Feldspar*.—Ontario is responsible for the total production of feldspar in 1904. Two producers made returns, viz., The Kingston Feldspar Mining Company and Mr. Charles Jenkins. No output of feldspar is reported from the province of Quebec this year.

The following are interested in the feldspar industry :—

W. A. Allan, Victoria Chambers, Ottawa, Ont.

Kingston Feldspar Mining Company, Kingston, Ont.

Pennsylvania Feldspar Company, Gerard Inst. Bldg., Philadelphia, Pa., U.S.A.

Charles Jenkins, Petrolia, Ont.

TABLE 5.  
MISCELLANEOUS.  
NON-METALLIC.  
PRODUCTION OF FELDSPAR.

Calendar Year.	Tons .	Value.
1890.....	700	\$3,500
1891.....	685	3,425
1892.....	175	525
1893.....	575	4,525
1894.....	Nil.	Nil.
1895.....		*2,545
1896.....	972	*2,583
1897.....	1,400	3,290
1898.....	2,500	6,250
1899.....	3,000	6,000
1900.....	318	1,112
1901.....	5,350	10,700
1902.....	7,576	15,152
1903.....	13,928	18,966
1904.....	11,083	22,166

\* Exports.



SESSIONAL PAPER No. 26a

*Fire-clay.*—The production of fireclay in 1904 according to the re- turns received amounted to 1,997 tons valued at \$8,592. This yield was altogether derived from Nova Scotia and New Brunswick. No production can be reported from British Columbia because no returns were received from that province although in previous years the output of fireclay in this province has amounted to more than half the total production. The material is usually obtained in connection with coal mining from the beds underlying the coal seams, it is mostly used locally in the construction and repairs of coke ovens and in connection with metallurgical operations.

MISCELLA-  
NEOUS.

TABLE C.  
MISCELLANEOUS.  
NON METALLIC.  
PRODUCTION OF FIRE-CLAY.

Calendar Year.	Tons.	Value.
1889.....	400	\$4,800
1890.....	Nil.	Nil.
1891.....	250	750
1892.....	1,991	4,467
1893.....	540	700
1894.....	539	2,167
1895.....	1,329	3,492
1896.....	842	1,805
1897.....	2,118	5,759
1898.....	670	1,680
1899.....	599	1,295
1900.....	1,245	4,130
1901.....	3,979	5,920
1902.....	2,741	4,283
1903.....	2,639	3,523
1904.....	1,997	8,592

*Moulding Sand.*—The figures given in Table 7, are derived chiefly from the returns of railway shipments and do not, therefore, nearly represent the total production. Deposits of sand answering the requirements of moulding sand are known to occur in almost every province and in many cases are worked for the local wants. Of those it is almost impossible to obtain returns of output from the producers. The greater proportion of the above railway shipments is derived from deposits in the Ontario Peninsuala, and is exported to the United States.



MISCELLA-  
NEOUS.

TABLE 7.  
MISCELLANEOUS.  
NON-METALLIC.  
PRODUCTION OF MOULDING SAND.

Calendar Year.	Tons.	Value.
1887 . . . . .	160	\$ 800
1888 . . . . .	169	845
1889 . . . . .	170	850
1890 . . . . .	320	1,410
1891 . . . . .	230	1,000
1892 . . . . .	345	1,380
1893 . . . . .	4,370	9,086
1894 . . . . .	6,214	12,428
1895 . . . . .	6,765	13,530
1896 . . . . .	5,739	11,478
1897 . . . . .	5,485	10,931
1898 . . . . .	10,572	21,038
1899 . . . . .	13,724	27,430
1900 . . . . .	6,181	12,316
1901 . . . . .	14,705	29,410
1902 . . . . .	13,352	27,651
1903 . . . . .	3,658	7,256
1904 . . . . .	3,423	6,790

TABLE 8.  
MISCELLANEOUS.  
NON-METALLIC.  
ANNUAL PRODUCTION OF QUARTZ.

Calendar Year.	Tons.	Value.
1890 . . . . .	200	\$ 1,000
1891 . . . . .		
1892 . . . . .		
1893 . . . . .	100	500
1894 . . . . .		
1895 . . . . .		
1896 . . . . .	10	50
1897 . . . . .		
1898 . . . . .	284	570
1899 . . . . .	600	1,260
1900-1904 . . . . .		



TABLE 9  
MISCELLANEOUS.  
NON-METALLIC.

MISCELLA-  
NEOUS.

IMPORTS OF "SILEX"—CRYSTALLIZED QUARTZ.

Fiscal Year.	Cwt.	Value.
1880.....	5,252	\$ 2,290
1881.....	3,251	1,659
1882.....	3,283	1,678
1883.....	3,543	2,058
1884.....	3,259	1,709
1885.....	3,527	1,443
1886.....	2,520	1,313
1887.....	14,533	5,073
1888.....	4,808	2,385
1889.....	5,130	1,211
1890.....	1,768	2,617
1891.....	3,674	1,929
1892.....	1,429	1,244
1893.....	2,447	1,301
1894.....	2,451	1,521
1895.....	2,882	1,881
1896.....	3,289	2,174
1897.....	2,564	3,415
1898.....	3,104	2,773
1899.....	3,951	2,595
1900.....	4,021	2,876
1901.....	3,562	2,106
1902.....	4,388	3,858
1903.....	3,514	2,762
1904.....Duty free.	5,547	4,409

*Magnesite.*—A production of 200 tons of magnesite is reported from British Columbia. This is a new addition to the list of Canadian mineral products, and as such it is interesting to note. However, there seems to be more than mineralogical interest regarding this, and we feel justified in quoting the Provincial Mineralogist of British Columbia concerning this occurrence and its possibilities :—

“A very curious and unusual occurrence of magnesite is found actually within the townsite of Atlin and less than a hundred yards from the Government office. The formation in the vicinity of the town is composed of the magnesian rocks. On these rocks overlain with wash, is the townsite, rising from the lake to a height of about 200 feet. Skirting the townsite on the rear—that is, the east—is a low depression or flat ‘draw,’ swampy in character, devoid of trees, and in places showing ‘hummocks’ of white magnesite which seems to be growing up from the swamp level ; for certainly these deposits are constantly rising higher and higher, and now form mounds 5 to 8 feet above the swamp level. The deposit is exposed on the surface over several acres and is, when dry, perfectly white. It



MISCELLA-  
NEOUS.

has been dug into for a depth of about 10 feet, and continues equally pure and clean from all foreign matter such as clay or gravel, as on the surface. This deposit was at first considered to be simply an accumulation of magnesite formed from the decomposition of the surrounding rocks and deposited by surface waters in this swamp. If such was its origin, it seems incredible that the deposit should be so free from clay and other materials, equally portable by water, and that it should be deposited in mounds above the water level. It seems probable, therefore, that the deposit is not from water, but that underlying this draw some particular stratum in the magnesian rock occurred, which, being softer, was more easily worn away, so forming the draw, and being more susceptible to the action of swamp waters carrying carbonic acid, was altered from an oxide of magnesia into the carbonate of magnesia or 'magnesite' in which operation it would be greatly increased in bulk, and so rise in mounds, seeming to 'grow up' from below. In this connexion attention is drawn to the analysis, given further on, of a mineral spring in the vicinity.

"The magnesite deposit has been staked as a mineral claim by A. C. Hirschfeld, of Atlin, who, during the season of 1904, dug from the surface exposures some 200 tons of the material which was sacked and shipped to San Francisco, Cal., as an experimental lot. The transportation companies are understood to have given a rate of \$8 per ton from Atlin to California, which apparently still leaves a margin of profit for the producers. It is understood that this shipment was intended to be used in the manufacture of 'magnesia brick' for furnace linings. The remarkable purity of the deposit would seem, however, to render it applicable for other uses, and this would justify a higher price being paid for it than is at present realized."

"The writer saw the magnesite being mined and no selection of the material was necessary ; it was simply shovelled into sacks. A sample from the shipment brought by the writer to Victoria, and analysed in the Government laboratory, gave the following :—

Iron.....	Trace	Silica.....	1.12%
Alumina.....	"	Carbonate Magnesia(MgCO <sub>3</sub> )	88.62%
Sulphates .....	None	Oxide (Mg. O.) .....	9.44%
Chlorides.....	"	Moisture.....	0.80%

"Near the north end of the townsite of Atlin and flowing out underground from the swamp in which the magnesite deposit occurs, is a mineral-bearing spring. In 1900 Mr. J. C. Gwillim, then of the Geological Survey, took some of this water to Ottawa for analysis, upon which Dr. Hoffmann, chemist of the Survey, reports as follows :—



## SESSIONAL PAPER No. 26a

‘This water was found to contain: Potassa, traces; soda, very small quantity; lime, very small quantity; magnesia, somewhat large quantity; ferrous oxide, trace; sulphuric acid, very small quantity; carbonic acid, large quantity; chlorine, very small quantity; silica, trace; organic matter, faint traces. MISCELLANEOUS.

‘The magnesia amounted approximately to 1.834 parts in 1,000, an amount which would correspond to 3.851 of magnesium carbonate, or 5.869 of magnesium bicarbonate. It is more than probable that it is to the water of this and similar springs in the vicinity that the deposits of hydro-magnesite occurring back of Atlin owe their origin.’”

In the Province of Quebec, in the township of Grenville, Argenteuil county, magnesite has been found both in situ and in boulders. Mr. W. B. McAllister in 1904, shipped two tons of the mineral as an experiment. A series of analyses of specimens from the deposit gave contents of magnesium carbonate of 76 to 83 per cent, while picked specimens contained as much as 95.50 per cent. A full description of the deposit with analyses, etc., will be found in the report of the Section of Chemistry and Mineralogy of the Geological Survey, Vol. XIII, Part R.

*Molybdenite*.—Some molybdenite ore was mined in 1903, in the township of Sheffield, county of Addington. Many occurrences of this mineral have been reported and there is good demand for it, but the deposits so far located do not seem to be large enough to be worked profitably. The molybdenite is usually found disseminated in quartz veins, and great difficulty has been experienced in concentrating it sufficiently for the market. At the request of the Geological Survey, some experiments in mechanical concentration of molybdenite were conducted in the laboratories of McGill University a few years ago, and the result seemed to show that, for the samples dealt with, after ordinary cobbing and hand picking it was not economical to submit the ore to any further process of extraction.



MISCELLA-  
NEOUS.

TABLE 10.  
MISCELLANEOUS.  
NON-METALLIC.  
ANNUAL PRODUCTION OF SOAPSTONE AND TALC.

Calendar Year.	Tons.	Value.	Calendar Year.	Tons.	Value.
1886.....	50	\$ 400	1896.....	410	1,230
1887.....	100	800	1897. ....	157	350
1888.....	140	280	1898.....	405	1,000
1889.....	195	1,170	1899.....	450	1,960
1890.....	917	1,239	1900.. ....	1,420	6,365
1891.....	Nil	Nil	1901.. ....	259	842
1892.....	1,374	6,240	1902.....	689	1,804
1893.....	717	1,920	1903.....	990	2,739
1894.....	916	1,640	1904.....	840	1,875
1895.....	475	2,138			

*Tripolite.*—Only a very limited quantity of tripolite was produced in 1904. The only deposits worked are in Nova Scotia, and as a rule a sufficient quantity of the material is produced in one season to last two years. This accounts for the apparent spasmodic and irregular production.

TABLE 11.  
MISCELLANEOUS.  
NON-METALLIC.  
PRODUCTION OF TRIPOLITE.

Calendar Year.	Tons.	Value.
1896.....	644	\$ 9,960
1897. ....	15	150
1898 .....	1,017	16,660
1898.....	1,000	15,000
1900.....	336	1,950
1901.. ....	850	15,300
1902 . ....	1,052	16,470
1903.. ....	835	16,700
1904.....	320	6,400



## INDEX.

	PAGE.
Letter of Transmittal .....	3
Explanatory Notes. ....	5
Summary of Production.....	Opposite 8
General Review of the Mineral Industry of Canada...	7-13

## METALLIC PRODUCTS.

## Precious Metals—

Gold.....	14-24
Silver.....	24-28
Copper.....	28-36
Iron.....	36-55
Lead.....	56-62
Nickel.....	62-64
Zinc.....	64-67

## Miscellaneous Metallic—

Aluminium.....	68
Antimony.....	68
Cobalt.....	70
Mercury.....	70
Platinum.....	71
Palladium.....	73
Tin.....	73

## NON-METALLIC PRODUCTS.

Abrasive Materials .....	74-78
Asbestos.....	79-82
Coal and Coke.....	83-103
Chromite.....	104
Graphite.....	105-107
Gypsum.....	107-111
Manganese.. ..	112
Mica.....	114
Mineral Water .....	115
Natural Gas.....	116
Mineral Pigments—	
Ochres.....	117
Barytes.....	120
Petroleum.....	121
Bounty Act and Regulations.. ..	126
Phosphate. . . . .	128
Pyrites.....	130
Salt.. ..	131



